

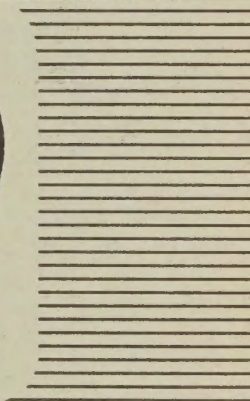
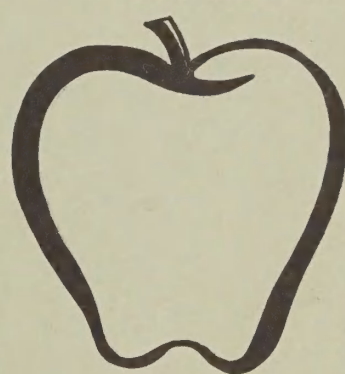
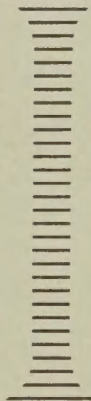
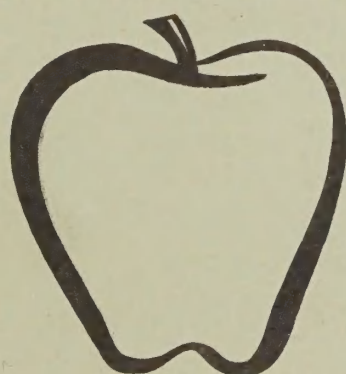
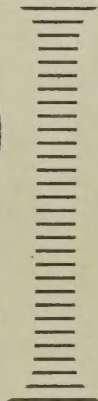
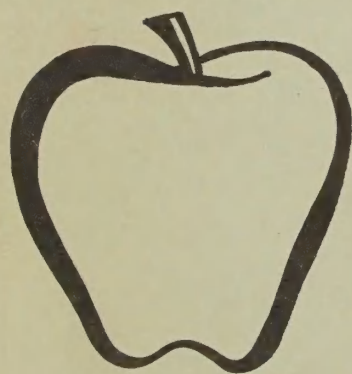
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APPLE MARKETING REPORT

A Team Study



UNITED STATES
DEPARTMENT
OF AGRICULTURE

LETTER OF TRANSMITTAL

August 7, 1972

Dr. Earl L. Butz
Secretary of Agriculture

I am pleased to transmit to you the report of the Apple Marketing Study Team. You established this team to study apple marketing problems and recommend action that would improve growers net income.

The team consulted extensively with members of the apple industry and experts in State and Federal Governments in making this study. However, the identification of solutions and recommendations as to needed action represents the team's conception of the problems. The purpose of this report is to explicitly state the team's findings with respect to apple marketing. The report is divided into a summary and five supplemental chapters on supply, quality, marketing efficiency, domestic demand, and foreign trade.

It is hoped that this report will elicit response from all segments of the industry--growers, packers, processors, apple marketing experts, State and Federal officials, and the general public.

Members of the apple industry have expressed appreciation for the active interest by the USDA in their industry. On behalf of the marketing team it has been a privilege to work with the apple industry and to have the opportunity to work together as a marketing team.

Robert W Bohall

Robert W. Bohall
Leader, Apple Marketing
Study Team

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CATALOGING PREP.

Last February, I appointed five separate teams to study agricultural marketing problems of canning peaches, hogs, apples, potatoes, and eggs. These teams have just submitted their reports to me.

The teams travelled extensively and sought comments from all components of the industries they studied. The reception given them by industry was enthusiastic, for which we are grateful.

The reports contain many recommendations which deserve attention from the Department and the industries involved. To this end, I am asking all agencies of the Department of Agriculture to give prompt and careful attention to these studies. I would like to know which recommendations can and will be implemented, and a time frame for such implementation. I also am asking each agency to indicate those recommendations which have promise but need modification before implementation.

Since the teams' reports are primarily for the benefit of the industries involved, I urge everyone -- producers, wholesalers, retailers, and consumers -- to read these reports carefully and send me their impressions of the recommendations made. I sincerely hope that the teams' reports can serve as a focal point and catalyst in a joint effort by the Department and the industries involved to initiate action to help solve their problems.

I would like to express my appreciation to the members of these teams for their commendable performance. This was an experiment in bringing together expertise from a number of agencies in an effort at problem solving. Thanks to the imaginative dedication of these teams and the quality of these reports the effort has been quite successful.

Credit should also be given to Dr. Jerome Siebert who has coordinated and provided USDA liaison for all of the teams, working under the overall supervision of Richard Lyng, Assistant Secretary for Marketing and Consumer Services.

EARL L. BUTZ
Secretary

LIST OF TEAM MEMBERS

Dr. Robert W. Bohall, Agricultural Economist, Marketing Economics Division,
Economic Research Service, Leader

Mr. Peter G. Chapogas, Agricultural Marketing Specialist, Agricultural Marketing
Institute, Agricultural Research Service

Mr. Philip Dwoskin, Program Coordinator for Utilization Economics, Marketing
Economics Division, Economic Research Service

Dr. Robert E. Hardenburg, Horticultural Laboratory Leader, Agricultural Market-
ing Institute, Agricultural Research Service

Dr. Myron Kelsey, Extension Specialist, Michigan State University (on leave with
the Farm Credit Administration)

Dr. John T. Porter, Marketing Economist, Agriculture and Natural Resources, Ex-
tension Service

Mr. Robert P. Rosko, Fresh Fruit and Vegetable Marketing Specialist, Fruit and
Vegetable Division, Agricultural Marketing Service

Mr. Gilbert E. Sindelar, Chief, Commodity Analysis Branch, Fruit and Vegetable
Division, Foreign Agricultural Service

Dr. Jerome B. Siebert, Special Assistant to the Secretary, Ex Officio

Mr. Perry R. Ellsworth, Executive Vice President

Mr. Fred W. Burrows, Director of Marketing Services

Mr. Fred P. Corey, Director of Education and Public Relations,
International Apple Institute, Ex Officio

ACKNOWLEDGMENTS

The apple marketing team owes a debt of gratitude to the many individuals who contributed freely of their time and effort to help in the study. In total, over 350 letters, documents, position papers, statements, and sets of material were received.

Growers, packers, processors, sales agencies, wholesalers, retailers, and representatives of industry organizations were consulted in a series of regional meetings in Winchester, Va.; Peach Glen, Pa.; Albany, N.Y.; Rochester, N.Y.; Grand Rapids, Mich.; Yakima, Wash.; and Berkeley, Calif. Industry, college, and State representatives at the regional meetings were well prepared and aided immeasurably in identifying the problems of the industry.

A number of industry organizations helped arrange the regional meetings and prepare position papers on the views of their members. These organizations included:

American Agricultural Marketing Association	Processed Apples Institute
California Apple Advisory Board	Produce Marketing Association
Idaho Apple Commission	United Fresh Fruit and Vegetable Association
International Apple Institute	Virginia State Apple Commission
Michigan Agricultural Cooperative Marketing Association	Washington Apple Commission
Michigan Apple Commission	Washington Growers Clearing House Association
New York and New England Apple Institute	Washington State Horticultural Association
Northwest Horticultural Council	Western New York Apple Growers Association
Pennsylvania Apple Marketing Board	

In addition, research and extension leaders from the land-grant colleges and other universities, State experiment stations, and State extension services provided ideas, suggestions, and support for the team. Personnel of State departments of agriculture also made important contributions through their advice and counsel. States contributing were as follows:

<u>Appalachia</u>	<u>Northeast</u>	<u>Lake States</u>	<u>Northwest</u>
Maryland	Connecticut	Illinois	Colorado
North Carolina	Maine	Indiana	Idaho
Pennsylvania	Massachusetts	Michigan	Oregon
Tennessee	New Hampshire	Minnesota	Utah
Virginia	New Jersey	Missouri	Washington
West Virginia	New York	Ohio	
	Rhode Island	Wisconsin	<u>Southwest</u>
	Vermont		California
			New Mexico

Experts from nearly every agency of the USDA provided invaluable help through their recommendations and cooperation.

The members of the apple marketing team would like to extend their appreciation to each individual who helped make the report possible.

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APPLE MARKETING REPORT--A TEAM STUDY

SUMMARY

Introduction

A basic concern of the U.S. apple industry has been low net returns to apple growers, especially during the past three marketing seasons. These low returns have occurred as a result of oversupply and the inability of the industry to expand demand rapidly enough to absorb increased production. The result has been low prices which, when coupled with increased costs of production, have reduced net incomes to growers despite some increases in productivity. A further complication has been the quantity of apples of poor quality and condition offered to consumers, especially in the fresh market. The quality of product offered influences grower returns both directly through prices and indirectly by influencing consumer confidence in fresh apples and in processed apple products.

Problems

The marketing of apples is complex, and the apple industry is very much aware of the many important problems that relate to growers' net returns. It was the mission of the apple marketing team to examine solutions and recommend action that would help solve these problems. A partial listing of the problem areas as identified by the apple industry and the marketing team follows:

Supply

1. Lack of a coordinated approach to industry supply problems.
2. Continued production of outdated varieties and poor quality apples on aged trees.
3. Lack of a dependable and efficient seasonal labor supply.
4. Poor financial management.
5. Inducements for unneeded orchard expansion.
6. Inability to capitalize on the expanding demand for apple juice.

Quality

1. Production and marketing of an excess of poor or low-quality apples.
2. Harvesting of immature and overmature apples.
3. Rough handling resulting in bruising, decay, and other deterioration in harvesting, packing, transporting, and retailing apples.
4. Storage of apples with poor keeping qualities or under poor conditions.
5. High packing costs due to low-quality orchard-run fruit.
6. Inadequate U.S. grades and standards.

Marketing Efficiency

1. Continued difficulty in establishing equitable prices between unequal size buyers and sellers.
2. Increasing costs and margins by marketing firms.
3. Inefficient and inadequate packaging that requires large inputs of materials and labor, does not provide protection, is not standardized, and results in excessive handling costs.
4. Continued transportation difficulties, including mechanical failures, damage in transit, and nonstandard vehicles.
5. Need for improved marketing information, including data on truck shipments, margins, crop estimates, and other statistics.
6. Lack of coordinated and complementary State and Federal research efforts.
7. Need for the Extension Service to organize personnel in the field to expand work on marketing and management educational programs for the apple industry.

Domestic Demand

1. Need to identify market requirements and opportunities.
2. Inadequate coordination and funding of apple promotion programs.
3. Need for the development and marketing of new apple products.
4. Poor timing of USDA purchase programs for fresh apples and apple products.
5. Failure to exploit fully opportunities for sales through roadside and pick-your-own marketing outlets.

Foreign Trade

1. Declining U.S. exports of fresh apples.
2. Increased potential for imports of fresh apples into the United States.
3. Heavy imports of apple juice concentrate into the United States.
4. Lack of effective legislative recourse to increasing imports.

The marketing team consulted extensively with members of the apple industry and representatives of industry organizations before making recommendations. In addition, the team also drew upon the expertise and knowledge of personnel of the land-grant colleges and other universities, State experiment stations, State extension services, and State departments of agriculture. However, the recommendations discussed below represent the thinking of the team on actions needed to improve returns to growers.

Recommendations

Recommendations are organized into categories according to the type of action needed. Hence, they are divided into those that are priority, legislative, supportive, research, extension, and industry recommendations.

Detailed information on the problems of the apple industry, possible solutions, and recommended actions are reported in the five supplemental chapters to this report.

Priority Recommendations

1. Quality--U.S. Grades and Standards.--There is a need to determine the desirability of revising the U.S. Standards for grades of apples to better control quality. These standards are the responsibility of the Agricultural Marketing Service (AMS) of the USDA in cooperation with the apple industry. The team recommends that changes be made in the following areas:

a. Make condition part of grade by deleting paragraph 51.310 in the Standards. With this change, decay, breakdown, and other deterioration developing on apples during storage or in transit would be scored against the grade, as is done for most other fresh produce. However, tolerances might be increased at destination. Concerning firmness, only overripe fruit would be scored against grade. This should improve the condition of apples offered for sale at retail and increased demand.

b. Eliminate the U.S. No. 1 grade and other lower grades that are rarely used. (Current standards contain nine grades, three of which are combination grades.)

c. Lower color requirements for red and red-striped varieties by 10 percent for Extra Fancy and Fancy grades.

d. The establishment of national controlled atmosphere (CA) standards for condition.

e. Additional changes to update and clarify the standards.

2. Legislation.--Legislation is needed to:

a. Extend the opportunity for establishing Federal marketing orders on apples to all producing areas; and

b. Enable the apple industry to respond quickly and effectively to problems created by imports.

These items are discussed under legislative recommendations 1, 2, and 3 below.

3. Packaging.--Research is needed to improve the performance of consumer packages for apples. Improved versions of the polyethylene bag package, including substitute semirigid or rigid consumer packages and suitable shipping containers, should be developed and tested. It is recommended that the USDA (Agricultural Research Service (ARS) and Economic Research Service (ERS)) along with the land-grant colleges and other universities place increased emphasis on this area as soon as possible.

4. Market Information.--Improved marketing information is needed for apples. USDA agencies for information are AMS, ERS, Statistical Reporting Service (SRS), and Foreign Agricultural Service (FAS). Emphasis should be placed on AMS truck shipments data, ERS margins, and SRS objective crop estimates, but serious attempts should also be made to make other improvements as suggested in the chapter on marketing efficiency.

5. U.S. Government Purchases.--The team recommends early announcement dates of offers to purchase fresh apples and processed apple products under Section 6 (school lunch) and Section 32 (child nutrition and needy persons) programs. These programs are handled by AMS and the Food and Nutrition Service (FNS).

6. Tree Removal.--A tree removal program to encourage removal of outdated varieties, old standard trees producing poor quality fruit, and trees serving only as hosts for disease and insects should be considered. The program could be developed under title VIII of the Agricultural Act of 1970 and would be administered by the Agricultural Stabilization and Conservation Service (ASCS). The team recommends that the program be developed on a grower bid basis to provide maximum incentive for evaluating the profitability of specific orchard blocks.

7. Exports.--It is recommended that the apple industry should strengthen its export market position by establishing an industry fact-finding team to evaluate the export potential in Latin America and the Far East. Through this assemblage of facts, the U.S. apple industry would be in a better position to judge what tools would be needed to effectively expand exports of fresh apples. This might include the formation of national or regional export associations under the Webb-Pomerene Export Trade Act of 1918.

Legislation

For the longer run it is recommended that certain legislation be enacted which would either directly or indirectly assist the apple industry in coming to grips with its problems.

1. Marketing Orders.--There is need for legislation such as H.R. 15352 (Goodling, Miller, Findley) which would amend the Agricultural Marketing Act of 1937, as amended, and extend to all producing areas the opportunity for marketing orders for fresh apples and apples for processing. The team recommends that the industry take advantage of the act and consider:

a. Grade, size, and quality regulations for fresh and processing apples and processed apples.

b. Developing nationwide and regional promotion programs.

c. Mandatory inspection for fresh and processing apples and processed apples.

d. Uniform regulations for containers.

e. Funding production and marketing research programs.

2. Imports.--Amend Section 303 of the Tariff Act of 1930, as amended, by deleting the requirement that the imported article be a dutiable one. This section provides for the imposition of a countervailing duty on any dutiable imports that are subject to an export bounty or grant. The U.S. import duties for fresh apples and apple juice were recently reduced to a duty-free status and are thus precluded from the provisions of this section.

3. Imports.--Amend Section 301 of the Trade Expansion Act of 1962 (the so-called "escape clause" provisions) by deleting or modifying the requirements for a Tariff Commission finding that the injury resulting from the increased imports is, in major part, a result of a trade agreement concession. In most instances, the reason for increased imports can be ascribed to factors other than the trade agreement concession itself. Thus, with more obvious forces at play, it has been a rarity for the petitioning industry to gain import relief through this route.

4. Imports.--Amend the Anti-Dumping Act of 1921, as amended, by placing a time limitation on Treasury's investigation of a "dumping" case. Although the Tariff Commission (to which the case is referred for a determination of injury in the event Treasury confirms the industry's original charge) is required to reach a verdict within 90 days, the Treasury Department is under no such time limitation.

5. Imports.--The apple industry, in concert with other horticultural industries, should seek legislation that is more responsive to the existence of a threat from foreign imports. Virtually all of the Federal statutes providing import relief require--either in the act itself or through administrative interpretation--a finding of injury, which is more or less a "postmortem" approach. Administrative interpretation has almost consistently refused to accept a threat as a decisive determinant for relief.

6. State Grades.--State legislation is needed in 13 States that would eliminate State grades for apples to lessen confusion in trading. (North Carolina amended its Apple Branding Law, effective July 1, 1972, to require all apples sold or offered for sale in closed containers in the State to bear on the container, bag, or other receptacle, the applicable U.S. grade, or be marked "Unclassified," "Not Graded," or "Grade Not Determined." State grades do not comply with their branding regulations. Other States should be encouraged to have similar laws.)

7. Labor.--There is a need for labor legislation that would provide ground rules for collective bargaining between farmworkers and growers such as H.R. 13981 (Quie Bill).

Supportive Needs

There are additional areas where the USDA and others could support the apple industry.

1. Quality

a. National Apple Maturity Committee.--A National Apple Maturity Committee should be established to act in an advisory capacity to evaluate current or new objective and subjective indices of maturity and methods of predicting proper harvest dates. It would aid AMS in modernizing definitions of immature, ~~mature~~, and overripe for inclusion in future revisions of U.S. Standards for Grades of Apples. Representatives from the USDA (AMS and ARS), State experiment stations, and State departments of agriculture should be included.

b. State Maturity Committees.--Maturity Committees should be initiated by State departments of agriculture in States where they are not currently operating. Such committees with State and industry representatives would specify general release dates for harvesting major varieties.

c. State Branding Laws.--State departments of agriculture should increase surveillance and enforcement of State branding laws, at the retail level, to keep off-quality produce from being sold.

d. Processing Grades and Standards.--Improved quality standards should be developed for apples for processing and processed apples, in particular apple juice.

2. Domestic Demand

a. Government Purchase Programs.--There is a need to take a systematic look at the present distribution of fresh fruit under school lunch and needy persons programs. Emphasis should be placed on determining the adequacy of the system for handling, storing, and maintaining the quality of fruit both in the distribution system and at the local school. These programs are handled primarily by FNS.

b. New Product Development.--It is recommended that an apple product review group should be established to evaluate and explore the feasibility of joint action in developing and commercializing new apple products. Membership would consist of representatives from the USDA (ERS, SRS, and ARS), the land-grant colleges and other universities, and the apple industry.

3. Supply

a. Reclamation Projects.--There is a need to insure that adequate long-run evaluation is made of the agricultural aspects of Bureau of Reclamation projects. The Secretary of Agriculture through his position on the Water Resources Council should seek a more realistic evaluation of the local area impact and the economic impact on other producing areas.

b. Foreign Labor.--The Department of Labor should be encouraged to provide continued support and improve avenues for the importation of foreign workers during periods of peak seasonal demand as areas utilizing foreign workers continue to adjust to a changing farm labor situation.

4. Removal of Foreign Trade Barriers

Efforts toward removal of trade barriers in foreign markets should be intensified. This action can be accomplished through the Department of State and the Office of the Special Representative for Trade Negotiations.

Research

The marketing team would be remiss if it did not indicate the general feeling of representatives of the apple industry, college and State personnel, USDA employees, and others regarding research needs. The team recommends that future expansion of research programs in support of the apple industry be in the

direction of marketing. The message consistently came across loud and clear that production problems are under reasonable control and that the serious unsolved problems are in marketing. In addition, the apple industry in the future will need to increase their direct inputs into the development and selection of research efforts that will have a high payoff for apple producers.

The USDA, in conjunction with State experiment stations, land-grant colleges and other universities, State departments of agriculture, and the industry, should continue to expand research efforts in support of the apple industry. A list of priority research needs follows with no attempt to be exhaustive. Other research problems requiring attention are discussed in the supplemental chapters to this report. The appropriate USDA agencies that would be involved are listed in parenthesis.

1. Maturity Indices.--Objective methods and indices for determining immaturity and ripeness for commercially important varieties need to be developed. This type of research is needed immediately on a regional basis. (ARS and AMS.)

When accurate methods and indices are devised for measuring maturity and ripeness, U.S. Standards for Grades of Apples should be revised. This will require fruit at shipping point to be mature but no more advanced in firmness (ripeness) than firm ripe. (See paragraph 51.323 of current U.S. Standards for Grades of Apples.)

2. Consumer Needs.--It is recommended that an indepth appraisal be made of (a) consumer requirements for apples and apple products in the household market; and (b) hotel, restaurant, and institutional requirements of the away-from-home market. Emphasis should be placed on determining the desired characteristics of fresh apples, market potentials for apple juice, and the present and future product forms needed by the away-from-home market. (ERS, SRS, ARS, and other.)

3. Labor and Mechanical Harvesting.--Apple harvesting now requires large numbers of workers for a short period of time. There is a need to expand efforts to develop mechanical harvesting systems for the orchards of today and the future. Innovative approaches are needed to develop harvesters that minimize fruit damage and interface with postharvest handling operations.

There is also a need to develop improved cultural systems that will distribute the annual labor requirements for apple production more evenly during the year and encourage fulltime employment of farmworkers. (ARS and Cooperative State Research Service (CSRS).)

4. Coordination.--Coordinated national research programs for apples are urgently needed and the USDA (CSRS and others) can help in providing leadership and support. Special efforts should be made to encourage States with a national, rather than a regional, interest in an area or commodity, such as apples, to develop coordinated research proposals for funding. There is a need to insure that regional research is being focused on industry problems and not on "like to do" projects with little regard for industry priorities.

5. Sorting Equipment.--There is a need to develop and evaluate equipment to detect, grade, and segregate poor-condition apples, including bruised apples and apples with invisible water core. (ARS.)

6. Processing Prices.--Research in major processing regions is needed so that the price to growers can be better based on quality delivered. This includes studies on raw-product sampling techniques, characteristics for optimum processing, and pricing formulas. (ARS.)

7. Packaging.--Increased efforts are necessary to develop, test, and adopt improved packaging that considers the total marketing system, is standardized, can be accomplished mechanically, requires less materials, reduces repackaging during marketing, and protects the apple during distribution. (ARS and ERS.)

8. Retail Handling.--Studies of apple merchandising practices in supermarkets are needed to determine handling procedures, shelf-life, turnover, and rate of deterioration under different holding conditions. (ARS and ERS.)

9. Truck Transportation.--Research is needed to solve problems associated with truck shipments of fresh apples. Emphasis should be placed on mechanical refrigeration, loading patterns, air circulation, shock absorber systems, and loading capacities of trucks. (ARS.)

Extension

USDA Extension Service personnel, in conjunction with the Cooperative State Extension Service, should provide leadership to develop teams of Federal, State, and industry personnel to set educational goals and assign responsibility to prepare and present materials for well-developed, coordinated, industry-wide educational programs. Several types of programs are needed.

1. Marketing Specialists.--The USDA Extension Service and some State extension services should increase the number of fruit marketing specialists. Many States have no extension personnel working on fruit marketing. The use of regional fruit marketing specialists should be considered.

2. Production Management.--There is a need for nationwide programs for apple growers with emphasis on evaluation of individual orchard blocks, farm labor management, and financial management.

3. Firm Organization.--Advice and counsel is needed on the benefits and drawbacks of alternative industry organizations. Many growers, packers, cooperatives, and sales agencies are considering consolidating into more viable units to bring increased stability to their marketing and to strengthen their bargaining position as sellers and buyers. Growers of apples are considering cooperatives, joint ventures, mutual participation contracts, marketing orders, and bargaining associations as a means of improving working relationships with buyers.

4. Quality.--Improved education programs for growers and fruit handlers are needed to make greater use of existing information on ways to maintain quality. Emphasis should be placed on harvest maturity, preventing bruising and other deterioration, good storage procedures, and proper packaging and handling through marketing channels.

5. Retail Handling.--The team recommends an educational program to train warehouse and retail store workers to properly handle, store, and display loose and consumer-packaged apples.

6. Direct Marketing.--Additional education programs and materials are needed to aid direct marketers such as roadside stands and pick-your-own operations.

Industry

State and Federal institutions can help the apple industry in many ways. However, the major improvements in apple marketing will continue to come from the industry itself. Some of these possibilities are listed below.

1. Standardization.--The team recommends that growers through their industry organizations establish packaging committees to standardize containers, reduce the number of apple sizes packed, set minimum performance standards for shipping containers, and evaluate experimental containers.

2. Promotion.--It is recommended that the apple industry expand its present promotional programs on two levels: First, its national programs, particularly its consumer-oriented programs, with greater emphasis on good-tasting apples, health, the youth market, the away-from-home market, etc; and second, stronger State and regional programs aimed at retailers, improved coordination to achieve more regional effort as opposed to State-versus-State programs, and stronger regional organization to achieve greater and more equitable participation by many States not presently able to carry their share in promotion programs.

3. Processor Pricing.--There is a need for apple processors to establish a variable payments system that reflects the value of higher quality fruit. Premiums might be based on results of USDA inspection that could be performed using processor specifications. These specifications could deviate from U.S. grade standards.

4. School Lunch Contacts.--The apple industry needs to improve contacts with school lunch managers by (a) having field representatives work with school district agents within States on timing of shipments, proper handling, storage practices, etc., and (b) working with schools at the local level to encourage use of fresh apples and processed apple products.

5. Juice Apple Production.--The team feels that the potential of the juice market needs to be evaluated. Producers and research personnel should be encouraged to examine the economic feasibility of producing juice apples.

6. Labeling.--All consumer packages and shipping containers should be labeled with recommended handling and storage instructions for apples. Container marking recommendations of container committees such as that of the Produce Marketing Association should be adopted.

7. Labor.--Producers need to reevaluate approaches towards employment of agricultural labor. Over the long run, it will be in the interest of employers to provide year-round employment individually or collectively for their employees.

8. New Products.--Apple processors should explore the possibilities of joint research and development ventures on new apple products with USDA regional laboratories.

9. Coordination Between Organizations.--Efforts by the apple industry to develop closer working relationships between State, regional, and national organizations should be continued. Formal and informal exchanges of ideas, joint development of advertising materials, etc., would improve the efficiency of present advertising dollars.

10. Tax Legislation.--Although it does not appear to be a serious problem at the moment, apple growers should consider and discuss capitalizing development costs for young apple orchards as planting costs are capitalized at the present time. Citrus and almond growers requested this legislation and are currently included under Section 278 of the IRS code. Similar inclusion for apples would remove the tax incentive for nonfarm investors to plant apple orchards.

11. Communication and Support.--It is a final recommendation of the team that the apple industry in the future must take greater responsibility and initiative as individuals and through its organizations in solving industry problems. This will include providing guidance, direction, and meaningful support for research, extension, and service programs of both State and Federal Governments. At the same time these institutions should continue to be responsive to the needs of the apple industry and keep communication lines open.

SUPPLY

Introduction

In the fall of 1971 an estimated 6.8 million bushels of apples were not harvested, including 3.0 million bushels in New York, primarily in western New York. Reasons given for this economic abandonment were lack of a processing market and low prices. The 1971-72 marketing season was also the third consecutive season in which prices for both fresh and processing apples were depressed. Many producers feel this is a direct result of overproduction.

During the past 3 years, many growers have been unable to recover their direct costs of production and harvesting and as a result have been forced to operate by depleting their equity and investment. In most cases this has meant using up savings and borrowing capital, even for the efficient and progressive producers.

The oversupply problem and concurrent low prices to growers have developed for a variety of reasons:

1. Overly optimistic plantings of new orchards in the early and mid-1960's as a result of favorable prices at that time. Many of these new orchards are now coming into heavy production.
2. Higher yields with new blocks due to higher density plantings, improved rootstocks, and better cultural practices. These trees come into heavy bearing at an earlier age than standard rootstocks.
3. A failure to cull out older trees, poor blocks, and weak varieties due to the favorable economic climate of the midsixties. The result is a surplus of usually inferior apples coming from overage deteriorated trees.
4. The inability of individual growers to act jointly and control production as an industry.
5. The emergence of part-time apple producers with off-farm income who do not depend primarily upon apples for a livelihood.
6. The necessity to push excess poor quality fruit into the processing channel, which is already well supplied with blocks aimed only toward processing.
7. The inability of the industry to rapidly adjust bearing acreage, due to the long-term nature of orchard investments.

As a result of discussion with the apple industry, several problem areas were delineated concerning apple production. These areas were:

1. Lack of a coordinated approach to industry supply problems.
2. Continued production of outdated varieties and poor-quality apples on aged trees.

3. Lack of a dependable and efficient seasonal labor supply.
4. Poor financial management.
5. Uneconomic inducements to orchard expansion.
6. Inability to capitalize on the expanding demand for apple juice.

Coordination

Problem

There is a lack of a coordinated approach to industry supply problems. The apple industry was composed of 21,290 commercial growers in 1969 according to the U.S. Census whose individual and regional interests often conflict with those of the industry. This makes it difficult to even discuss objectively any industrywide activities attempting to influence supply and quality.

Discussion

Apple producers are small in size and compete with one another in selling their crops. Growers are basically price takers when dealing with processors and shippers; and packers are in a similar position when dealing with large retail buyers. No one grower or shipper is large enough to substantially increase his income by withholding apples from the marketplace. On the other hand, often the easiest way to increase returns is to plant more trees. The result is that producers have no muscle or coordination of either their selling or production decisions. Each individual firm goes its own way without considering the overall effect on the apple industry.

In discussions with the apple industry, interest in coordinating the activities of producers was expressed in several ways. These programs are either geared toward regulating supply or toward increasing demand.

Federal Marketing Order for Apples.--Several quality, packaging, supply, and distribution control alternatives are possible under the Agricultural Marketing Agreement Act of 1937, as amended. Currently the industry cannot discuss realistically any of these alternatives because several large apple-producing States are excluded from differing provisions of the act as it applies to apples. Presently there are no Federal marketing orders in effect for apples. However, there are State marketing orders for apples in effect in 10 States.

The Agricultural Marketing Agreement Act of 1937, as amended, authorized marketing orders for apples as follows: (1) An order or orders may be issued for apples produced in Washington, Oregon, Idaho, New York, Michigan, Maryland, New Jersey, Indiana, California, Maine, Vermont, New Hampshire, Rhode Island, Massachusetts, Connecticut, Colorado, Utah, New Mexico, Illinois, and Ohio; and (2) an order or orders may be issued for apples for canning or freezing produced in the above-named States except Washington, Oregon, and Idaho.

Before an order or orders can be issued for apples produced in any State not named above, an order or orders for canned or frozen apples, or an order or orders for apples for canning or freezing produced in Washington, Oregon, and Idaho or in any State not listed in (1) above, the act would have to be amended through legislation on the part of Congress to provide authority for all such orders.

Direct Governmental Control.--Various governmental control mechanisms were suggested to limit apple production, including licensing of producers, acreage allotments, planting permits, marketing quotas, and marketing certificates. Many of the suggestions were tied in with the need for base prices, an apple bank, guaranteed prices, price supports, etc. Nearly all the proposals would require legislation and a willingness for growers to accept supply control in exchange for higher prices.

Given the generally inelastic demand for apples at the farm level, supply control should increase revenue to growers, at least in the short run. In effect, a given reduction in supply will induce a proportionally greater increase in price, increasing total revenue, but the response is probably not as great as would be expected for other commodities such as potatoes. In addition, over time consumers have the option of substituting other fruit and dessert items for apples.

Considerable opposition to supply control was voiced by representatives of the apple industry, including spokesmen for some of the larger producer organizations. The difficulty of getting agreement among participants as to the action that should be taken is the result of wide variations between firms in terms of size of enterprise, production costs, product quality, varieties produced, and market outlets available.

Another complicating factor is that rigid supply control programs often result in capitalization of the benefits of the programs into the cost of allotments or licenses. This can result in shortrun gains for current producers but provides a barrier for new growers entering the industry.

Developing a Reliable Outlet for Production.--This solution involves a restructuring of the apple industry. Growers tend to be price takers and some growers of fresh and processing apples have a hard time marketing their crop at any price. Growers need to develop strong cooperatives, vertically integrate, develop a strong bargaining association, and/or enter into long-term agreements with shippers to produce for a market. Similar arrangements including long-term contracts could be entered into in the processing market. The goal would be to have a firm commitment by handlers for as much of the crop as possible.

Expanding Sales and Increasing the Demand for Apples.--Expanding the demand for apples through various types of industry and Government programs will make it easier to market the present crop. The programs involving promotion, new product development, Government purchases, and expanding exports are discussed in another section of the report.

Let Nature Take Its Course.--A literal interpretation of this solution is to control production through nature--freezes, drought, wind, heat, disease, insects, etc., all have a share in controlling production. Economics also serves to control supply, although not without hardship for many producers. After a period of several low-price years and the inability to market all of the crop, many of the poorer managers and marginal producers will be forced out of the apple industry; those firms remaining will need to take a closer look at planting decisions. According to the 1969 Census of Agriculture, the number of farms reporting apple production declined 61 percent from 54,583 in 1964 to 21,290 in 1969. A similar decline over the next 5 years would result in only 8,300 apple growers in 1974. A key to the success of this solution is to provide as much information to growers, packers, and processors as possible so that informed decisions can be made as to the profit potential of the industry.

Recommendations

1. The Agricultural Marketing Agreement Act of 1937 needs to be amended to include all producing areas under provisions for fresh apples and apples for processing.

2. The apple industry should take advantage of the legislation and consider:

a. Grade, size, and/or quality regulations for fresh and/or processed apples.

b. Developing nationwide and regional promotion programs.

c. Mandatory inspection for fresh and/or processed apples.

d. Uniform regulations for containers.

e. Funding production and marketing research programs.

3. The team is neutral on the use of a Federal market order as a supply control mechanism. If a Federal market order were used as a supply control device it is recommended that it be national in scope and include both fresh and processing apples. The USDA should stand ready to assist the apple industry with a Federal market order if so desired.

4. Direct governmental supply control programs such as marketing quotas or price supports are not recommended by the team.

5. Growers should develop firm long-term markets for their apples so they are not so vulnerable at harvest. This can be done through cooperatives, vertical integration, bargaining associations, long-term contracts, etc. The USDA should provide economic and technical assistance where possible through agencies such as Farmer Cooperative Service (FCS), Agricultural Research Service (ARS), Extension Service (ES), Economic Research Service (ERS), and Farmers Home Administration (FHA). Of special interest in recent years is the emergence of joint

ventures between corporations and farmer cooperatives (1). 1/ These arrangements provide cooperative members with an assured "home" for their product coupled with the marketing expertise of the corporation. The corporation in turn acquires an established procurement system and a guaranteed source of supply.

6. The team is in favor of adjustment by the apple industry in response to economic conditions. This consists of exit and entry of firms, planting and tree removal decisions, etc., all of which are necessary to provide a viable, healthy industry. The adjustment process includes relocation and concentration of production in areas with relative comparative advantages, shifts in varieties, changes in technology, and a continuing reassessment of consumer needs and preferences. To aid the adjustment process, more coordinated and precise production and marketing information is needed. These needs are discussed in detail in the section on marketing efficiency.

OLD TREES

Problem

There is continued production of outdated varieties and poor quality apples on aged trees. Production from many of the old varieties is not readily accepted in the market and prices must be cut to obtain consumer acceptance and subsequent movement of fruit through the market. This price cutting has a depressing effect on the more popular varieties. In addition, there is a marked tendency to produce poorer color and smaller size fruit on the inside of older trees. These old trees are larger when mature than the newer plantings on dwarfing rootstocks. Their removal and possible replacement with size-controlled trees is essential for the development and adoption of new orchard technology, particularly mechanical harvesting.

Programs have been instituted at various times and in various areas to obtain accelerated tree removal. The Economic Community currently has an orchard grubbing campaign underway in member countries to obtain apple, peach, and pear tree removal. As of March 1, 1971, applications had been received from 60,262 growers to remove 239,640 acres of fruit trees. In order to receive the \$327 per acre payment, a grower must renounce any new plantings for a period of 5 years. Apparently there have been substantial differences in reception of this program among EC countries. Italy has refused to fund its share of the program while France has tightened the conditions so that not only are trees removed but the producer must seek other employment.

During 1941-43, the USDA had an Agricultural Conservation Payment Program for the removal of diseased and uneconomic fruit trees. Payments were made to 24,738 growers to remove trees on 114,530 acres. Payments ranged from \$0.30 to \$0.75 per tree, depending on trunk diameter, with a maximum \$15.00 payment per acre.

1/ Underscored numbers in parentheses refer to the references at the end of the chapter.

The industry in the East and Central United States particularly feels that some form of governmental inducement to assist in the removal of older trees and poorly marketable varieties would help the industry adjust to changing production technology and market requirements.

Estimates of the maximum cost of removing trees in such a program for the primary apple-producing States are indicated in table 1. Trees planted in 1939 and prior years total 3,502,285; and those during the period 1940-49, 3,298,354. Detailed tree information is shown in table 2.

These figures indicate that a total of 6,800,639 trees, or 21.3 percent of all apple trees in the primary apple-producing States, are 22 years of age or older. Probably very few of those planted during the 1940-49 period would or should be drawn into a tree removal program, but a very large proportion of those planted in 1939 and prior years probably should be removed.

A tree removal program would have considerably different effects and participation in different areas. In the States of Washington and North Carolina, for instance, there are few old trees. However, in California, Michigan, New York, and the Appalachian producing areas, there are substantial numbers of very old trees, including almost one-quarter over 30 years old.

Solutions

1. Recommend to apple producers that they utilize marketing order provisions to provide for a grower assessment to be utilized as an inducement for growers to remove old trees producing fruit of poor quality, small size, and varieties difficult to sell and utilize in fresh and processing markets. Authority to conduct such a program may require a liberal interpretation of marketing order legislation. Decisions on assessments, payment rates, varieties, and age of trees to be removed would be made by a grower committee.

Table 1.--Maximum direct payment in an apple tree removal program

Total payment to remove all trees planted prior to:

Payment rate per tree	<u>1939</u>	<u>1949</u>
\$5.00	\$17,511,425	\$34,003,195
3.00	10,506,855	20,401,917
2.50	8,755,712	17,001,598
2.00	7,004,570	13,601,278
1.00	3,502,285	6,800,639

Table 2.--Tree population for primary apple-producing States, 1969

State	Number of farms	Tree acreage	Total trees	Non- bearing trees	Bearing trees	Trees per acre	Percent of bearing trees	Percent of old:			Number of trees planted	
								Percent of non- bearing trees	Prior to 1939	1940- 49		
New York	1,633	79,107	3,782,913	987,436	2,795,477	48	74	26	24	13	789,003	429,469
Pennsylvania..	1,362	40,069	2,039,209	523,594	1,515,615	51	74	26	13	22	232,566	393,429
Virginia	856	39,500	1,962,723	553,406	1,409,317	50	72	28	24	18	394,907	303,897
West Virginia:	289	17,092	823,493	224,300	599,193	48	72	27	22	18	195,200	160,620
North Car- olina	756	14,835	928,309	316,284	612,025	63	66	34	7	14	70,357	132,676
Ohio	893	15,764	730,594	173,182	557,412	46	76	24	19	15	113,378	89,374
Illinois	448	11,769	581,062	138,792	442,270	49	76	24	5	17	29,328	93,635
Michigan	2,314	68,635	3,449,026	837,612	2,611,414	50	76	24	24	13	840,556	449,080
Wisconsin ...	612	9,250	540,967	127,941	413,026	58	76	24	31	18	126,990	751,180
Washington ..	3,477	92,244	9,155,120	3,412,587	5,742,533	99	63	37	1/5	1/8	458,000	732,000
Oregon	907	7,254	575,331	135,745	439,586	79	76	24	1/5	1/10	29,000	57,000
California ..	1,026	23,244	1,590,799	231,612	1,359,187	68	85	14	1/24	1/20	223,000	382,000
Total, States: reported ..	14,573	418,763	26,159,346	7,662,491	18,497,055						3,502,285	3,298,354
United States:	21,290	525,920	31,975,320	9,277,795	22,697,525	61	71					
Reported States as percent of United States:	68.4	79.6	81.8	82.6	81.5							

Source: 1969 Census of Agriculture.

2. Undertake a USDA tree removal program through Agricultural Stabilization and Conservation Service (ASCS) for orchard adjustment, similar to the 1941-43 Agricultural Conservation Program. This might come under title VIII of the Agricultural Act of 1970. Such a program would be aimed at assisting in the removal of old standard trees and poorly accepted varieties. If only the primary commercial agricultural States were eligible for such a program, the direct costs of such a program are indicated in table 1 for differing payment rates per tree. The rough cost of removing apple trees in a commercial orchard is \$5.00 per tree.

An alternative procedure for conducting the program would be a voluntary program of payments based upon grower bids, such as that included in table 3. Under the grower bid method, an individual grower would submit bids of acres and tree numbers that he would be willing to take out for a specified price or rate of payment. He could also be required to include in his bid various information on recent production, variety, age of trees, and other information needed to aid the Government in making a decision on what bids or portions of bids to accept.

Table 3.--Example of a grower bid for orchard removal payment

<u>Number of acres</u>	<u>Number of trees</u>	<u>Variety</u>	<u>Recent average production (bushels)</u>	<u>Tree age (years)</u>	<u>Bid price per acre</u>	<u>Bid price per tree</u>
6	200	Jonathan	2,500	60	\$225	\$6.75
4	150	Hubbarston	2,300	60	250	6.67
5	160	Baldwin	1,000	70	150	4.68
7	220	R.I. Greening	1,200	70	200	6.36
3	150	Jonathan	400	30	100	2.00
5	200	Jonathan	300	30	50	1.25
4	120	Baldwin	500	50	100	3.33
12	360	N. Spy	2,400	50	350	11.67
5	150	Red Delicious	1,600	50	500	16.67
3	150	Red Delicious	500	50	450	9.00
4	200	Jonathan	1,300	30	500	10.00
4	200	McIntosh	1,400	30	500	10.00
6	600	Starkcrimson	800	12	800	8.00
4	400	Jonathan	1,000	12	800	8.00

Once the administrators knew how much response they would get at different rates of removal payments, it might be desirable to accept bids up to one maximum level payment rate in one production area and up to a different level of payment in other regions. The effects upon variety composition and different market utilizations, such as fresh and processed, could also be taken into account by assessing the information provided by growers in their bids.

A grower would have an incentive to bid low; otherwise he would run the risk of not getting any payment. The grower would certainly bid a high price per acre for those orchards that were productive and with high expected profit streams. Thus it would be expected that few of these would be removed under such a program. With the grower bid method, it might be desirable to require the grower to submit a map of the blocks that he is bidding for removal payment. These maps could be used to check compliance.

3. Undertake a strong educational program with growers to evaluate their individual orchard blocks and to encourage voluntary removal where indicated for the growers' own economic benefit. This program could be conducted by the respective State Cooperative Extension Services with leadership from the Federal Extension Service.

4. Add stronger condition standards in U.S. grades of fruit being sold for fresh market to keep poor quality fruit out of market channels. This would provide a stronger economic incentive for growers to remove blocks producing poor quality fruit and upgrade the quality of fruit available to consumers.

5. The industry should evaluate customary packing charges to more clearly reflect the cost of packing lower grade apples. This would also provide an incentive to remove trees producing poor quality fruit.

Recommendations

The marketing team recommends that the Department undertake solution 3 and cooperate with the industry on solution 4. Strong consideration should also be given to the grower-bid procedure for tree removal as outlined in the second solution. This procedure would have a substantial educational benefit in encouraging growers to evaluate the potential income from various orchard blocks.

Seasonal Harvest Labor

Problem

It is becoming increasingly difficult to obtain competent seasonal harvest labor in the apple industry.

Discussion

Current apple production techniques require a heavy input of harvest labor in relation to total crop labor requirements, as indicated in the following tabulation. The requirements per acre are not expected to change significantly in 1975.

Man-hours per acre to produce and harvest apples

<u>Period</u>	<u>Total labor required</u>	<u>Harvest labor</u>	<u>Harvest as a % of total</u>
1964-68	126	68	54
1975 (estimated)	112	64	57

Source: (2).

This harvest labor peak necessitates a labor pool projected to 1975 of 33.9 million man-hours versus an annual labor requirement of 29.6 million man-hours during the 1964-68 period. "Migratory workers, those who travel to at least the next county and remain away at least overnight, are a relatively small segment (257,000 or about 10%) of the hired farm work force" (3). With apples, however, migrants contribute a much more significant proportion of the work force, and under the current organization of some farms, migrants perform perhaps the most crucial role in the production process by moving as they do to fill critical and fluctuating seasonal labor demands. "Despite their present critical role, their continuation perpetuates a class of worker whose social and economic conditions are among the lowest in the American labor force" (4). Present-day social and political forces are pushing for a termination of the current type of migratory farm labor system.

This migratory system is supplemented in the Eastern United States by importation of approximately 6,000 foreign workers from the British West Indies and Canada and in the West by Mexicans crossing illegally into the United States. Sixty percent of the seasonal labor force in 1969 was housewives and students.

The challenge to the apple industry is to develop a year-round work pattern for employees through altering crop labor requirements, mechanization during peak labor periods, and developing labor techniques to utilize nonfarm workers, housewives, and students during the remaining peak labor periods.

The labor problem which overrides all others is the threat of harvesttime strikes and secondary boycotts by labor organizers. With no ground rules established in legislation for the organizing of agricultural employees, producers are fearful of the effects of a harvest strike or boycott on their financial solvency. With very high fixed costs in the annual production of an apple crop, such an action would force financial insolvency on a high proportion of growers in a single year.

Solutions

1. There is a need for labor legislation that would provide ground rules for collective bargaining between farmworkers and growers such as H.R. 13981 (Quie Bill).
2. The Department of Labor should be encouraged to provide continued support and improve avenues for the importation of foreign workers during periods of peak seasonal demand, as these areas continue to adjust to an altered farm labor situation.
3. Develop a framework to coordinate current migrant seasonal workers that will provide them with full employment and a minimum number of job moves. This framework could be developed by farm employers, a "migratory workers" union, or an expansion of the current seasonal labor activities of the Department of Labor. Such a program must alleviate the conditions under which migratory farm laborers in 1969 worked an average of 78 days at farmwork and 50 days at non-farmwork for average annual earnings of \$1,732 (5).
4. Provide increased research emphasis by ARS and Cooperative State Research Service (CSRS) on production and harvest methods that will distribute the annual labor requirements for apple production more evenly during the year. This would include expansion of the harvest season, development of improved dwarfing rootstocks, harvest mechanization, etc.
5. Encourage the Department of Labor to move more rapidly on the educational efforts for farm employees outlined in the "Manpower Task Force."
6. Develop extension programs with workers and employees on farm labor management. For employers, particular emphasis needs to be placed on farm adjustment to provide year-round employment and instruction in how to recruit, supervise, and understand the needs of local seasonal employees and migrants.

Recommendations

Major emphasis should be put on items 1, 4, and 6 for longrun solutions to the labor problem. Improvement of the programs concerning foreign workers should be developed to provide for a period of adjustment to the conditions of a nonmigratory labor force.

Financial Management

Problem

The current period of low apple prices has forced many growers into financial difficulty.

Discussion

The nature of apple production requires large amounts of annual expenditures for production. Updating orchard blocks with new varieties and rootstocks requires substantial capital outlays with no return for 5 to 7 years. The normal pattern for the industry has been self-financing by growers, or, in the case of some fresh fruit areas, advances by sales agencies for annual production purposes. With several poor income years back to back and the accelerating pace towards larger productive units, producers are being forced to finance more of their operations from borrowed funds. Many of these growers are not well versed in financial management and the preparation of appropriate statements and budgets to obtain credit from financial institutions. Their expressions of concern have motivated requests for some form of emergency financial aid.

Solutions

1. Develop in apple-producing regions some form of emergency operating funds on a highly supervised credit basis. This might be accomplished through the Farmers Home Administration. Current FHA agricultural financing programs do not provide adequate supervision to help apple producers who are in financial trouble. These producers require guidance to alter their operations to meet changing economic conditions before lasting improvement can occur.

The current situation is not a result of circumstances arising from conditions which would allow the usual emergency FHA provisions to be utilized. Even if they could, these funds are not what is needed. The poorly financed producers require credit and management assistance to change the production unit, not just keep it operating through a short-term emergency period.

2. Develop an apple producer management educational effort through the Cooperative Extension Service to provide intensive educational programs with producers in the area of financial management, as well as overall management techniques and analysis as a basis for self-improvement. Such an effort would also provide an avenue for many growers who cannot improve their economic situation to recognize that fact and seek alternative employment opportunities.

3. Encourage Cooperative Extension Service efforts to work with the credit agencies to enable them to better understand the credit needs of apple producers, and therefore fit loan requirements and repayment programs more correctly with the needs. This might take the form of a special credit seminar to reach those credit personnel operating in fruit regions. Current credit training programs have not addressed themselves specifically to fruit loans, but have concentrated on cash crop and livestock situations.

Recommendation

Items 2 and 3 should be included as part of a joint Federal-State extension team effort with the apple industry.

We do not recommend an emergency FHA program for areas of the apple industry unless substantial additional loan supervision can be provided to encourage

growers to make the changes that are necessary to permanently improve their situation.

Orchard Expansion

Tax Laws

Problem.--Although the apple industry is already overproducing, continual expansion can occur and is occurring as a result of noneconomic income tax inducements to offset nonfarm ordinary income and convert it to capital gains.

Section 278 of the Internal Revenue Code requires, under the cash method of income tax reporting, the capitalization of planting and development costs to bring a citrus or almond orchard into production. These rules do not apply to the development costs in other tree fruits, including apples. This provides an opportunity for nonfarm investors to plant new orchards, deduct, over a period of years, the annual development costs from other income, and then sell the bearing orchards. Any gain over land acquisition and planting cost is treated at capital gains rates. In practically all cases, the sale price is less than the total cost, but even an economic loss creates a net positive cash benefit because of the differential taxation rates. The tax advantage also accrues to the current producer, who is in the business to make a current economic income. However, the tax advantage is not as substantial because, generally, the current producer's tax bracket is not as high and he takes the income in later years as current income instead of selling the farm at capital gains rates.

Solutions.--Either include apples under section 278 of the IRS code or require fruit producers and all farmers and ranchers to utilize the accrual method of accounting for income tax purposes.

Any change will require new legislation. If the almond growers' experience is indicative, it could be easily achieved.

Recommendation.--Although it does not appear to be a serious problem at the moment, the industry should examine and discuss the pros and cons of including apples under section 278 of the IRS code. The present industry benefits tax-wise and accounting-wise by being excluded from these provisions. Citrus and almond growers did not react until outside investors had helped create a substantial oversupply and it was already too late to remedy the situation.

Bureau of Reclamation Projects

Problem.--Frequently there is an uneconomic inducement for orchard expansion in Bureau of Reclamation projects.

Discussion.--The apple industry over the past 20 years has undergone a gradual decline in acreage along with a major shift in relative importance of production regions from East to West (table 4). While the Eastern and Central regions have reduced tree numbers, the West has expanded.

Table 4.--Apple tree numbers in the United States, selected years

Year	Eastern	Central	Western	United States
----- <u>Million trees</u> -----				
1950	21.6	18.1	7.8	47.5
1954	14.1	9.3	7.4	30.8
1959	11.9	7.5	8.8	28.2
1964	11.5	6.3	10.4	28.2
1969	12.2	7.1	12.7	32.0

Source: U.S. Census of Agriculture.

During the late 1950's and into the mid-1960's, these opposite trends about balanced so that tree numbers were relatively stable. In the late 1960's, all areas expanded tree numbers. The West's expansion has been particularly rapid, as indicated in tables 4 and 5. Part of the economic inducement for the expansion in the West can be attributed to highly favorable water rates. These rates are provided during the orchard development period by means of delaying the annual farm assessment for waterworks up to 10 years. This provides a substantial subsidy to new apple and other tree fruit plantings, especially when combined with the Federal assistance and low interest loans for the major water project itself.

The Bureau of Reclamation should develop a more realistic evaluation of local area and total industry impact of the agricultural phases of reclamation projects. More favorable water rates should not be provided where that cost advantage provides an economic advantage for new tree plantings over other competing areas.

Recommendation.--Recognizing the interagency differences involved, the Secretary of Agriculture should utilize his position on the Water Resources Council to ensure that adequate longrun evaluation is made of the agricultural aspects of Bureau of Reclamation projects. This should include not only a more realistic evaluation of the local area impact but also the economic impact on other producing areas.

Table 5.--Apple acreages, production, and value under Federal Reclamation projects, Region I (Washington, Oregon, Idaho), 1955-70 1/

Year	Acreage	Production		Value of crops		
		Cwt. per acre	Total cwt.	Per cwt.	Per acre	Total
1955 ...	33,240	203.5	6,764,002	\$3.75	\$763.22	\$25,369,432
1956 ...	34,528	157.8	5,447,322	5.32	839.89	28,999,888
1957 ...	36,245	223.5	8,101,002	1.87	417.29	15,124,737
1958 ...	37,191	207.5	7,717,112	2.60	539.85	20,077,406
1959 ...	--	--	--	--	--	--
1960 ...	38,186	134.1	5,121,191	4.69	628.81	24,011,821
1961 ...	40,345	146.1	5,895,602	5.13	750.29	30,270,353
1962 ...	39,513	152.0	6,005,783	4.65	706.31	27,908,510
1963 ...	44,706	207.0	9,253,604	2.66	550.80	24,623,928
1964 ...	45,759	168.7	7,720,266	3.56	600.00	27,455,559
1965 ...	40,225	142.0	5,713,145	4.16	590.89	23,768,748
1966 ...	48,770	180.0	8,778,600	4.10	738.00	35,992,260
1967 ...	49,994	146.7	7,333,441	5.28	773.85	38,687,723
1968 ...	52,465	113.5	5,953,151	7.55	856.39	44,930,755
1969 ...	58,406	211.7	12,363,367	4.01	849.47	49,614,017
1970 ...	64,337	154.3	9,928,400	5.26	811.20	52,190,699

-- = Not available.

1/ Federal Reclamation Projects, Statistical Appendix 1949-70 Crop Report and Related Data. U.S. Dept. of the Interior, Bur. Reclamation, Div. Irrig. and Land Use.

Apple Juice

Problem

The apple industry has not been able to capitalize on expanding demand for apple juice. Per capita consumption of apple juice increased from 1.2 pounds per capita in 1960 to nearly 4.0 pounds in 1971. In 1961, 728 million pounds of apples were utilized for juice; in 1970, only 1,200 million pounds went into juice. A major portion of the increased consumption has come from juice imports. Slightly more than half of these imports in recent years have gone into wine production.

Traditionally, the apple juice market is considered the "market of last resort" for a producer's apples. It is the market for culls, non-popular varieties, poor quality, and drops. As such, it provides a floor price for fresh market and processing apples. Producer prices fluctuate widely during the season and in response to import prices.

Because of these characteristics, producers have not critically evaluated the future potential of the apple juice market, particularly for wine, and the adjustments that might be made in production and harvesting practices to produce directly for the market, rather than continuing the juice market indefinitely as a tertiary market.

Recommendations

1. Research efforts are needed by the industry as well as ARS, ERS, and CSRS on the market potential for apple juice. If this market continues to grow, an examination will be needed of optimum characteristics for juice apples and an evaluation of production practices to achieve volume where finish, as for the fresh market, and size, as for the processing market, are not critical.

2. Examine ways to reduce the extreme price fluctuations in the juice market, particularly those resulting from imports of concentrated juice dumped into the U.S. market.

3. Emphasis is needed on stabilizing the price of the juice market. This might be accomplished by the apple industry through contracts and bargaining associations.

4. The industry should reevaluate its approach to the juice market, particularly to encourage examination by producers and research personnel of cultural practices and the economics of producing juice apples.

5. Quality standards for apple juice should be improved.

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QUALITY

Introduction

The quality of apples marketed has a direct impact on the income of apple growers. The marketing system directly rewards producers through higher prices if quality is good; lower prices result with poor quality apples.

Quality has a second and less direct but equally important effect on producer income. This is the impact of consumer tastes and preferences on consumer confidence in apples. When a consumer purchases poor quality apples, he may decide to postpone his next purchase or make an additional purchase only at a lower price. The result is that when a grower sells poor quality apples, consumers lose confidence in the product. This loss of confidence depresses prices for all other producers. A similar situation holds for processed apple products.

Over time, consumer confidence can be reinforced and built through a consistently good quality product and the creation of a more favorable attitude toward apples through promotion. In essence, consumers will increase their demand or taste and preferences for apples. However, consumer tastes and preferences are akin to the stock market in that confidence goes up slowly but can come down fast. All of this leads to the point that the apple industry cannot afford the right of "economic salvage" and expect to remain viable. Economic salvage is interpreted as allowing poor quality fruit to be dumped on the market at any price in order to salvage some return for a few producers. The cost of "dumping" is then also borne by producers of good quality fruit.

This section looks at quality--one of the most serious problems of the apple industry--from three points of view: (1) the cost of economic salvage in 1969-70, (2) quality and quality maintenance, and (3) U.S. grades and standards.

Cost of Economic Salvage in 1969-70

The 1969-70 season was characterized by heavy production, low prices, and poor quality for a good portion of the crop. A USDA study of the retail demand for fresh apples illustrates what happened to consumer tastes and preferences in that season (2). ^{1/} Retail demand for apples was examined from 1964-65 through 1969-70. In addition, season-to-season changes in the total retail value of fresh apples were studied, plus the amount of change in retail value contributed by four major factors: Population growth, inflation, change in seasonal fresh movement, and shift in consumer demand.

The study indicated that the retail value of fresh apples generally increased from year to year (table 6). An exception was 1965-66 when there was a decline in retail value of \$43 million from the previous season. The largest gain was \$105 million in 1968-69. Population growth was a consistent positive contributor to increasing retail value, about \$5-\$6 million annually. A second

^{1/} Underscored numbers in parentheses refer to the references at the end of the chapter.

Table 6.--Season-to-season changes in retail value of fresh apples and amounts contributed to change by four major factors, 1964-65 through 1969-70

Factor	1964-65	1965-66	1966-67	1967-68	1968-69	1969-70
-----Dollars-----						
Gain or loss in retail value from preceding season 1/	+45,703,800	-43,389,100	+55,631,300	+66,757,300	+104,851,100	+42,227,600
Amount contributed by--						
Population growth 2/	+6,555,595	+5,768,382	+4,695,859	+5,240,828	+5,298,101	+6,423,701
Inflation 1/	+10,410,800	+7,938,300	+23,250,700	+27,972,300	+47,582,400	+48,261,500
Change in seasonal fresh movement 2/	+11,863,535	-38,498,327	+17,369,354	-26,223,731	+18,189,332	+65,782,294
Shift in consumer demand 2/..	+9,612,195	-6,118,779	+25,092,134	+47,684,674	+32,532,705	-84,928,526

1/ Current dollars.

2/ Constant dollars.

consistently positive factor was inflation, ranging from \$8 million in 1965-66 to \$48 million in 1969-70.

The change in retail value due to a change in seasonal fresh movement was generally consistent with the size of the fresh crop. Retail value increased in larger fresh crop years and decreased in smaller fresh crop years. The large fresh crop in 1969-70 was worth an extra \$65 million at retail, compared with the previous season.

The last item, shift in consumer demand, is of major concern. Consumer demand is influenced by consumer incomes, the prices of related goods, the range of goods available, and consumer tastes and preferences. The author tested the effect of consumer incomes and the prices of substitutes and found that they did not have a significant influence in the study period. The range of products available does not change rapidly from year to year. In effect, the shift in consumer demand represented consumer tastes and preferences. The two big factors influencing consumer tastes and preferences for fresh apples were promotion programs and consumers' confidence in apples. In 1966-67, 1967-68, and 1968-69 the retail value of shifts in consumer demand were plus \$25 million, plus \$47 million, and plus \$32 million, respectively. In effect, promotion programs were paying off, consumer confidence was high, and the apple industry was prospering.

In 1969-70, a heavy volume of poor quality fruit was marketed, often at salvage prices. The retail value of the resulting shift in consumer demand was minus \$85 million. This was in spite of promotion programs and the positive influence of the previous 3 years. Translated into returns to growers, \$85 million at retail would represent \$25-\$30 million at the farm level or \$1,200-\$1,400 per producer. This is equivalent to 10 percent of the total value of the crop.

That quality is a serious problem for the apple industry cannot be over-emphasized. Nearly one out of every two industry leaders who contacted the marketing team mentioned quality as an area of concern.

Quality and Quality Maintenance

A basic concern of the industry is an excess of poor or low quality apples grown and being marketed--both for fresh and processing uses.

The demand for high quality apples frequently is not being satisfied. Too much fruit of low quality or poor condition is placed on the fresh market and reaches consumers. It may be low quality when it is harvested; or, through careless or improper handling after harvest, it deteriorates in storage, packing, transport, or retailing. The proportion of poor quality fruit produced has increased in some areas. Eating quality is of utmost importance to satisfy consumers and stimulate repeat sales. Most consumers who like fresh apples want a good-looking, crisp, juicy, flavorful product; not a mealy, tasteless fruit or one with internal breakdown. A recent USDA study (1) showed that 28 percent of customers sampled were disappointed in apples purchased during the year.

Quality has become a key to selling apples. Consumers are more discriminating, want quality, and are willing to pay a reasonable price for it. Quality

in apples is a many-faceted complex of problems. These quality and quality maintenance problems are discussed separately in four sections: (1) maturity; (2) bruising, decay, and other deterioration; (3) quality segregation and refrigerated storage; and (4) quality packout.

Maturity

Problem

Both immaturity and overmaturity are serious problems in many areas. Harvesting apples of a given variety during the optimum period (often only 10-12 days or less if long storage is desired) is a major problem--usually impossible.

Complicating the problem are other factors: (1) There is no single index of optimum harvest maturity (days from full bloom, firmness, soluble solids, loss of astringency, break in ground color, flesh color, seed color, and starch-iodine tests); (2) there are marked differences of maturity on individual trees and on trees of different vigor; (3) weather, particularly warm temperature, may hasten ripening; (4) grades are weighted heavily on color, so fruit may be left on trees too long; and (5) harvest labor is often in short supply and poorly trained.

Recommendations

1. Research on Maturity Indices.--Objective methods and indices for determining and separating degrees of ripeness for commercially important varieties need to be developed. This type of research is needed immediately on a regional basis. When accurate methods and indices are devised for measuring maturity and ripeness, U.S. Standards for Grades of Apples should be revised. This will require fruit at shipping point to be mature but no more advanced in firmness (ripeness) than firm ripe (see paragraph 51.323 of current Standards). (Agricultural Research Service (ARS), AMS, and State experiment stations.)

2. National Apple Maturity Committee.--A National Apple Maturity Committee should be established to act in an advisory capacity to evaluate current or new objective and subjective indices of maturity and methods of predicting proper harvest dates. It would aid AMS in modernizing definitions of immature, mature, and overripe for inclusion in future revisions of U.S. Standards for Grades of Apples. Representatives from the USDA (AMS and ARS), State experiment stations, and State departments of agriculture should be included.

3. State Maturity Committees.--Maturity committees should be initiated by State departments of agriculture in States where they are not currently operating. Such committees with State and industry representatives would specify general release dates for harvesting major varieties.

4. Extension.--The USDA (ARS and Extension Service (ES)) and the State colleges should increase educational programs to make greater use of existing information on harvest maturity.

Bruising, Decay, and Other Deterioration

Problem

Bruising and other damage and deterioration rate high as serious problems because they often cause apples to be out of grade, hurt sales, and evoke consumer dissatisfaction.

Discussion

Bruising, wherever it occurs, is visible and damaging. And the eye controls the purse strings of the housewife. Studies in retail stores have shown that about one-third of the apples offered for sale are bruised so badly that their appearance and quality are materially impaired. Bruising is certainly not a new problem; over 100 studies on where it occurs and how it can be minimized are published. But the problem remains because apples are very susceptible to bruising (3).

Most bruising and mechanical injury result from careless handling and poorly designed equipment where fruit is dropped or subjected to pressure. Apples are not hardware; yet poorly trained and poorly supervised labor, whether on a harvesting crew, in a warehouse, or in a retail store, will damage fruit. Managers at all levels must be more quality conscious if bruising is to be minimized.

Recommendations

1. Extension.--The USDA (ES and ARS), State colleges, and State departments of agriculture should increase educational programs to make greater use of existing information on prevention of bruising, decay, and other fruit deterioration. Better practices by growers and all who handle and market apples can alone result in great improvement. More fruit marketing specialists should be assigned to major apple producing States. Area fruit marketing specialists might be assigned to entire regions, such as New England.

2. Mechanical Harvesting.--Apple harvesting now requires large numbers of workers for a short period of time. There is a need to expand efforts to develop mechanical harvesting systems for the orchards of today and the future. Innovative approaches are needed to develop harvesters that minimize fruit damage and interface with postharvest handling operations. There is also a need to develop improved cultural systems that will distribute the annual labor requirements and encourage use of fulltime employees. (ARS and CSRS.)

3. Sorting Equipment.--There is a need to develop and evaluate equipment to detect, grade, and segregate poor condition apples, including bruised apples and apples with water core. (ARS and State experiment stations.)

4. Processing Prices.--Research in major processing regions is needed so that the price to growers can be based on quality delivered. This would include studies on raw product sampling techniques, characteristics for optimum processing, and pricing formulas. Such research should allow processors to establish escalator payments for premium quality fruit. USDA inspections could be performed using processor specifications, which may deviate from U.S. Processing Grades.

5. Retail Handling.--Studies of apple merchandising and handling practices are needed in supermarkets to determine shelf life, turnover, and rate of deterioration under different holding conditions. (ARS, Economic Research Service (ERS).)

Quality Segregation and Refrigerated Storage

Problem

Frequently apples with different keeping qualities are mixed during harvest or at the packing plant. As a result much fruit is stored when it has little or no potential storage life or is stored too long. Another problem is underutilization of available information on the value of refrigeration and storage procedures, as well as an actual shortage of storage capacity in some regions.

Recommendations

1. Extension.--Expanded educational efforts of State colleges, USDA (ES, AMS, ARS), and trade associations are needed to help growers and warehouse operators become knowledgeable about fruit quality and quality maintenance. State colleges should develop guidelines to assist growers in determining when a variety or block of fruit in an orchard becomes unprofitable. Fruit of different quality and condition must be identified and channeled to appropriate fresh or processing usage and segregated for short or longer storage. Fruit handlers must be instructed on preserving good quality through continuous refrigeration. This training can be done through distribution of new or existing publications and posters and conducting storage and marketing clinics.

2. Research.--(a) Expanded research by the USDA (ARS and AMS) and State experiment stations is needed to develop objective measurements of quality and condition factors in fruit for use in grading and segregating fruit for storage or marketing.

(b) The USDA (ARS) and State colleges should continue research on the post-harvest physiology and storage of apples with emphasis on finding better methods of retarding ripening and breakdown.

(c) The USDA (ARS and CSRS), in conjunction with State college specialists who understand mechanical equipment, should study various bin-filling equipment in operation and decide what features should be incorporated into a design that minimizes damage. Such improved equipment will hasten adoption of presorting and presizing prior to storage.

Quality Packout

Problem

Apples packed for fresh market from orchard-run fruit of low quality are not likely to be profitable. Storage, grading, and packing are expensive. Thus, it is imperative that a warehouse have a good packout of the better grades to be an efficient operation.

Recommendations

1. Industry.--(a) Growers must place more emphasis on producing a crop with a large proportion of high quality apples and harvesting with greater care. This is a grower responsibility, if he expects to remain financially successful. It can be accomplished through utilization of improved cultural practices, better training, and stricter supervision of harvesting and handling labor. State extension workers can assist growers.

(b) Growers should evaluate and segregate blocks of fruit for fresh and processing utilization as early as possible to aid in orderly planning. Growers can divert more fruit directly to processors and avoid storing low quality fruit for fresh market packing.

2. Warehouse Research.--The USDA (ARS, ERS, CSRS), land-grant colleges, and industry should conduct research on the operation and design of packing plants and handling systems to improve packout and reduce operating costs. Research should be directed at presorting, presizing, bin-filling, automated handling, and packaging with analysis of costs and effects on fruit quality. Coordinated effort is needed to look at the entire handling, storing, and packing system with a goal of laying out the ultimate warehouse and packing line.

Grades and Standards

Problem

The U.S. Standards for Grades of Apples were first promulgated in 1924. Since then, the standards have been revised or amended many times at the request of industry to reflect changes in the industry. Many people in the industry maintain that the standards should be further revised to better serve the needs of industry and reflect levels of quality desired by consumers.

Discussion

The U.S. Standards for Grades of Apples are promulgated by the Fruit and Vegetable Division of the Agricultural Marketing Service (AMS), specifically the Fresh Products Standardization and Inspection Branch. This branch is divided into two sections: (a) Inspection and (b) Standardization. The Inspection Section provides official inspection and grading services to shippers, processors, sellers, buyers (including other Government agencies), and other financially interested parties on a fee basis. Use of this service is voluntary (unless made mandatory by some other program or contract) and is available upon request.

The Standardization Section is responsible for developing standards and procedures for their application to aid growers and other segments of the fresh product industry in marketing their product. The standards provide a yardstick for measuring quality which forms a basis for satisfactory trading.

Most apple packers use the standards and inspection for quality control in packing to meet wholesale buyer requirements and to enable appropriate labeling for benefit of the consumer. At present, 13 States have their own grades and standards for apples (4), but only the State of Washington uses its grades extensively. The State grades are similar to USDA grades (5), but there are variations in certain requirements, i.e., color, shape, and russetting, which lead to confusion in trading. Elimination of State grades and adoption of U.S. grades would lessen confusion in trading at wholesale and retail levels.

Many people at the regional meetings commented that the U.S. Standards for Grades of Apples should be revised to:

1. Make condition part of grade;
2. Lower color requirements; and
3. Eliminate the U.S. No. 1 grade.

What would be the benefit of making condition part of grade? The U.S. Standards for Grades of Apples, along with the pear standards, are different in one respect from other (fresh fruit and vegetable) U.S. grade standards. In the apple and pear standards, decay and other factors developing after storage or transit (5) are considered as affecting condition and not the grade (quality). (The Inspection Service general definition of quality and condition as they apply to fresh fruits and vegetables are as follows:

1. Quality--The inherent properties of a product which determine its relative degree of excellence.

2. Condition--The relative degree of soundness or preservation of a product and includes, but is not necessarily limited to, its firmness, decay, freezing or mechanical injury, shriveling, flabbiness, or any other factor which affects its merchantability.)

Factors of deterioration are not handled this way in grade standards for other products. For example, in the U.S. Standards for Peaches, decay, bruising, softness, and other factors subject to change are scored against grade along with permanent defects (those not subject to change) to determine the grade of the lot. At shipping point, a lot of peaches containing more than 1-percent decay but with permanent defects within tolerance would fail to grade U.S. No. 1 because the 1-percent tolerance for decay is exceeded. The lot would be certified as failing to grade U.S. No. 1 because of defects in excess of the tolerance or as containing a certain percentage of U.S. No. 1 quality, together with the percentage of decay or other serious condition defects. En route or at destination such a lot could have an additional 2-percent tolerance for decay (6); but if the decay tolerance were exceeded, the lot would be reported out of grade and certified as follows:

"Meets quality requirements but fails to grade U.S. No. 1 account of condition."

This procedure is followed in the case of grapes, cantaloups, onions, potatoes, lettuce, and all other fruits and vegetables for which there are grade standards, except apples and pears. Some of the standards provide increased tolerances en route or at destination; others do not.

Under the present apple standards, a lot a freshly packed apples containing decay or other condition defects in excess of the specified tolerances would fail to meet grade and would be certified out of grade or as containing a percentage of a given grade, e.g., 85 percent No. 1 quality. However, when apples are inspected after storage, en route, or at destination, and the lot contains excessive decay or other condition defects, it would be reported as meeting the specified grade, e.g., U.S. Extra Fancy, decay and scald being factors of condition. This would be the case even though the lot may contain 100 percent decay or other condition defects.

Some members of the industry maintain that condition should not be made part of grade until condition factors can be determined by objective methods. The truth of the matter is that all factors of condition (7) scorable as defects, including overripe fruit, are readily detected and evaluated subjectively (with a high degree of accuracy) by the Inspection Service. If the standards were revised today, making condition part of grade, the Inspection Service could accurately interpret all condition defects. Presently, condition is part of grade in Canada (apple standards) and the system is working well.

Firmness is the only factor of condition which cannot be accurately determined by subjective means. There are five stages of firmness or ripeness: Hard, firm, firm ripe, ripe, and overripe. Overripe is considered a condition

defect in the apple standards and the exact percentage found in a lot by the inspector is reported on the inspection certificate. The other degrees of firmness are not condition defects but are reported on the certificate in general terms to provide the reader with a picture of firmness (ripeness) of the lot. It is difficult, if not impossible, for inspectors to accurately separate degrees of firmness (hard to ripe) using present methods of determination. Accurate objective methods and indices must be developed.

If U.S. grade standards were revised to include condition as part of grade, the apples offered for sale at retail should improve in condition. State departments of agriculture could also play a major role in improving condition of apples at retail levels by increased surveillance and enforcement of State branding laws. This means that containers or consumer packages marked with a grade would have to meet that grade or the handler would be in violation of the law and would be subject to a fine.

What would be the benefit of lowering color requirements in the grade standards?

Color requirements in the U.S. Standards for Grades of Apples specify shades of red color permitted in the grades and the minimum percentage of surface area that must be covered with it (see exhibit A). It was mentioned at the regional meetings that emphasis on red color is detrimental to improving condition of fruit since growers tend to leave fruit on the trees longer to obtain maximum color; this practice often results in overripe fruit.

Relaxing color requirements for the grades by 10 percent would mean a higher percentage packout of Extra Fancy and Fancy apples which are likely to be in better condition. The fresh apple grower could realize more money for his crop if buyers would accept apples with less red color. Relaxation of color requirements would be especially helpful to growers in California, North Carolina, South Carolina, and Georgia, where climatic conditions make it difficult to obtain Extra Fancy and Fancy color.

Should the U.S. No. 1 grade be eliminated?

The U.S. No. 1 grade is the primary trading grade for many fresh fruits and vegetables but not apples. U.S. Fancy is the primary apple trading grade, although U.S. No. 1 apples are marketed extensively in some cities.

The basic differences between U.S. No. 1 and higher grades is color, russeting, and invisible water core. U.S. No. 1 apples may have less red color than higher grades and more russeting; visible water core is not scorable against U.S. No. 1, but is against higher grades.

Many industry people contend the No. 1 grade should be eliminated because the grower is fortunate to break even selling this quality fruit through regular fresh market channels. Roadside stands are a good and profitable outlet for No. 1 apples but less than 5 percent of commercial production is merchandised this way.

COLOR REQUIREMENTS

§ 51.305 Color requirements.

In addition to the requirement specified for the grades set forth in §§ 51.300 to 51.304 apples of these grades shall have the percentage of color specified for the variety in Table I appearing in this section. For the solid red varieties the percentage stated refers to the area of the surface which must be covered with a good shade of solid red characteristic of the variety: *Provided*, That an apple having color of a lighter shade of solid red or striped red than that considered a good shade of red characteristic of the variety may be admitted to a grade, provided it has sufficient additional area covered so that the apple has as good an appearance as one with the minimum percentage of good red characteristic of the variety required for the grade. For the striped red varieties the percentage stated refers to the area of the surface in which the stripes of a good shade of red characteristic of the variety shall predominate over stripes of lighter red, green, or yellow. However, an apple having color of a lighter shade than that considered as a good shade of red characteristic of the variety may be admitted to a grade, provided it has sufficient additional area covered so that the apple has as good an appearance as one with the minimum percentage of stripes of a good red characteristic of the variety required for the grade. Faded brown stripes shall not be considered as color except in the case of the Gray Baldwin variety.

TABLE I—COLOR REQUIREMENTS FOR SPECIFIED U.S. GRADES OF APPLES BY VARIETY

Variety	U.S. Extra Fancy	U.S. Fancy	U.S. No. 1
Solid Red:	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>
Black Ben.....	66	40	25
Gano.....	66	40	25
Winesap.....	66	40	25
Other similar varieties ¹	66	40	25
Red Sport varieties ²	66	40	25
Striped or partially red:			
Jonathan.....	66	33	25
McIntosh.....	50	33	25
Cortland.....	50	33	25
Other similar varieties ³	50	33	25
Rome Beauty.....	50	33	15
Stayman.....	50	33	15
York Imperial.....	50	33	15
Baldwin.....	50	25	15
Ben Davis.....	50	25	15
Delicious.....	50	25	15
Mammoth Black Twig.....	50	25	15
Turley.....	50	25	15
Wagener.....	50	25	15
Wealthy.....	50	25	15
Willow Twig.....	50	25	15
Northern Spy.....	50	25	15
Other similar varieties ⁴	50	25	15
Hubbardston.....	50	15	10
Stark.....	50	15	10
Other similar varieties.....	50	15	10
Red June.....	50	15	(5)
Red Gravenstein.....	50	15	(5)
Williams.....	50	15	(5)
Other similar varieties.....	50	15	(5)
Gravenstein.....	25	10	(5)
Duchess.....	25	10	(5)
Other similar varieties ⁵	25	10	(5)
Red cheeked or blushed:			
Malden Blush.....	(7)	(5)	(5)
Twenty Ounce.....	(7)	(5)	(5)
Winter Banana.....	(7)	(5)	(5)
Other similar varieties.....	(7)	(5)	(5)
Green varieties.....	(9)	(9)	(9)
Yellow varieties.....	(9)	(9)	(9)
Golden Delicious.....	(10)	(10)	(9)

¹ Arkansas Black, Beacon, Detroit Red, Esopus Spitzenburg, King David, Lowry, Minjon.

² When Red Sport varieties are specified as such they shall meet the color requirements specified for Red Sport varieties.

³ Haralson, Kendall, Macoun, Snow (Fameuse).

⁴ Bonum, Early McIntosh, Limbertwig, Milton, Nero, Paragon, Melba.

⁵ Tinge of color.

⁶ Red Astrachan, Smokehouse, Summer Rambo, Dudley.

⁷ Blush Cheek.

⁸ None.

⁹ Characteristic ground color.

¹⁰ 75 percent or more of the surface of the apple shall show white or light green predominating over the green color.

U.S. No. 1 apples are a good buy for many consumers who desire apples with less color and cosmetic appeal. If this grade were eliminated from the standards, two grades would be eliminated--U.S. No. 1 and Combination U.S. Fancy and U.S. No. 1. The best way to determine whether this change and other changes mentioned earlier should be adopted is for AMS to publish a draft for discussion to determine the desirability of revising the apple standards. This draft would receive full distribution to the industry for their overall views and comments.

Controlled-Atmosphere (CA) Storage of Apples

Controlled atmosphere is a form of storage in which atmospheric gases and temperature are controlled for the purpose of regulating condition and maturity of fresh fruits and vegetables. The major advantage of CA storage is the extension of storage and marketing life of the fruit. The major disadvantage is cost; CA storage cost is approximately twice that of regular storage.

It was mentioned at regional meetings that many States have CA storage laws which require regulation of atmospheric gases, temperature, and length of storage in order that fruit may be designated--labeled or marked--as CA storage fruit. However, Washington State is the only State that has a fruit condition requirement as part of its Controlled Atmosphere Storage Requirements (see exhibit B). The major concern is that other States using CA storage should have similar requirements for condition to build a good reputation for CA fruit. Consideration should be given to development of a national CA standard to regulate condition of fruit designated as being in CA. The USDA, with industry cooperation, could publish a discussion draft to determine desirability of developing such a standard. All interested industry parties could express their views and submit written comments to the Department. If the industry expressed a desire to develop national CA condition standards, the USDA could then investigate storage practices and evaluate information collected. Proposed standards could be developed and published in the Federal Register as a notice of proposed rule making, and a specified time period set to allow interested persons to study and comment on the proposal.

Exhibit B

WASHINGTON CONTROLLED ATMOSPHERE STORAGE REQUIREMENTS

Chapter 29, Laws of 1961

1. "Controlled Atmosphere Storages" means any storage warehouse consisting of one or more rooms, or one or more rooms in any one facility in which atmospheric gases are controlled in their amount and in degrees of temperature for the purpose of controlling the condition and maturity of any fresh fruits or vegetables in order that, upon removal, they may be designated as having been exposed to controlled atmosphere.
2. It shall be unlawful for any person to engage in the business of operating a controlled atmosphere storage warehouse or warehouses without first obtaining an annual license from the director. Such license shall expire on August 31st of any one year. The annual license fee shall be five dollars.
3. The Director of Agriculture when issuing a license shall include a warehouse number which shall be preceded by the letters "WNCA." These letters and number issued must appear on all containers in

which fruits or vegetables are packed provided that such fruits or vegetables therein contained have qualified under all of the provisions of this act.

4. Oxygen content of each room shall be reduced to 5% within 20 days after sealing of room.
5. Fruit shall be retained in a controlled atmosphere storage, under required degrees of temperature and percentage of air components, for a period of not less than 90 days—to qualify as having been stored in controlled atmosphere storage.
6. All fruit sold as C. A. fruit must be inspected and certified as to Grade and condition and be marked with a state lot number in addition to the C. A. number.
7. At time of shipment all fruit shipped and marked with C. A. number shall meet the U. S. condition and maturity standards for export.
8. Fruit not shipped within a period of two weeks after inspection and certification, must be reinspected.
9. Failure to meet any one of the requirements noted above, will prohibit such fruit from being sold as C. A. storage fruit or the containers marked as such.

All comments would be taken into account in considering whether the standards should be issued as proposed, with amendments, or withdrawn.

If it is decided to promulgate the standards, they would be issued in final form in the Federal Register.

What changes can be made in the apple grade standards that will benefit growers and consumers?

Solutions

1. Immediate Action.--Making condition part of grade should improve the condition of apples at retail and possibly increase demand through better satisfied consumers.

2. Immediate Action.--Reducing color requirements in apple standards for red varieties 10 percent should improve condition of fruit from the growing area on through to the market. It would be easier for growers to meet the U.S. Extra Fancy and Fancy grades.

3. Later Action.--Develop grade requirements that emphasize degrees of quality based on external appearance (as in present standards) and eating quality. Research is needed to correlate eating quality to firmness, soluble solids, and appearance.

4. Later Action.--Require apples to be no further advanced than firm ripe at point of origin. This is currently being done by Canada. It would definitely improve fruit condition, and could be implemented when accurate methods of determining firmness are developed.

Recommendations

1. Quality--U.S. Grades and Standards.--There is a need to determine the desirability of revising the U.S. Apple Standards to better control quality. These standards are the responsibility of the Agricultural Marketing Service (AMS) of the USDA in cooperation with the apple industry. The team recommends that changes be made in the following areas:

a. Make condition part of grade by deleting paragraph 51.310 in the standards. With this change, decay, breakdown, and other deterioration developing on apples during storage or in transit would be scored against the grade, as is done for most other fresh produce. However, tolerances might be increased at destination. Concerning firmness, only overripe fruit would be scored against grade. This should improve the condition of apples offered for sale at retail and increase demand.

b. Eliminate the U.S. No. 1 grade and other lower grades that are rarely used. (Current standards contain nine grades, three of which are combination grades.)

c. Lower color requirements for red and red-striped varieties by 10 percent for Extra Fancy and Fancy grades.

d. Make additional changes to update and clarify the standards.

A draft with proposed changes would be prepared and would receive industry-wide distribution. All interested parties would be encouraged to submit written views and comments. Views and comments would be evaluated and desirable changes would be published under notice of proposed rulemaking in the Federal Register for public review and comments.

2. CA Condition Standards.--The USDA (AMS) in cooperation with industry should determine the desirability for establishing minimum national CA standards for condition.

3. Maturity and Ripeness Indices.--Objective methods and indices for determining immaturity and ripeness for commercially important varieties need to be developed. This type of research is needed immediately on a regional basis. (ARS, AMS, and State experiment stations.)

When accurate methods and indices are devised for measuring maturity and ripeness, U.S. Standards for Grades of Apples should be revised. This will require fruit at shipping point to be mature but no more advanced in firmness (ripeness) than firm ripe. (See paragraph 51.323 of current Standards.) Canadian standards now call for firm and firm-ripe maturity at time of shipment--riper fruit is classed as "local maturity" and is sold to local or nearby markets.

4. State Grades.--There is a need for legislation in 13 States that would eliminate State grades for apples to lessen confusion in trading. (North Carolina amended its Apple Branding Law, effective July 1, 1972, to require all apples sold or offered for sale in closed containers in the State to bear on the container, bag, or other receptacle, the applicable U.S. grade or be marked "Unclassified," "Not Graded," or "Grade Not Determined." State grades do not comply with their branding regulations. Other States should be encouraged to have similar laws.)

5. State Branding Laws.--State departments of agriculture should increase surveillance and enforcement of State branding laws, at the retail level, to keep off-quality produce from being sold.

6. Processing Grades and Standards.--The USDA (AMS), in cooperation with industry, should develop improved quality standards for apples for processing and processed apples, in particular apple juice.

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MARKETING EFFICIENCY

Introduction

This section discusses problems, and recommendations relating to marketing efficiency and the physical distribution of apples in six areas. The topics are pricing, packaging, transportation, market information systems, coordination of economic research, and extension. In addition, other topics that partially pertain to marketing efficiency have been included under chapters on supply, quality, and foreign trade.

Pricing

The price of apples is a matter of daily concern to apple growers and consumers and all the marketing firms in between. The survival and well-being of the grower depends directly on the prices received for each season's crop of fruit. Pricing problems concern two distinct areas. First, the establishment of the tone, base prices, or general level of the market each season that will match the total crop of apples to the demands of consumers; second, determining day-to-day variations in prices that will allocate apples to different markets through the entire season and among different grades, packs, and final uses, whether fresh or processed.

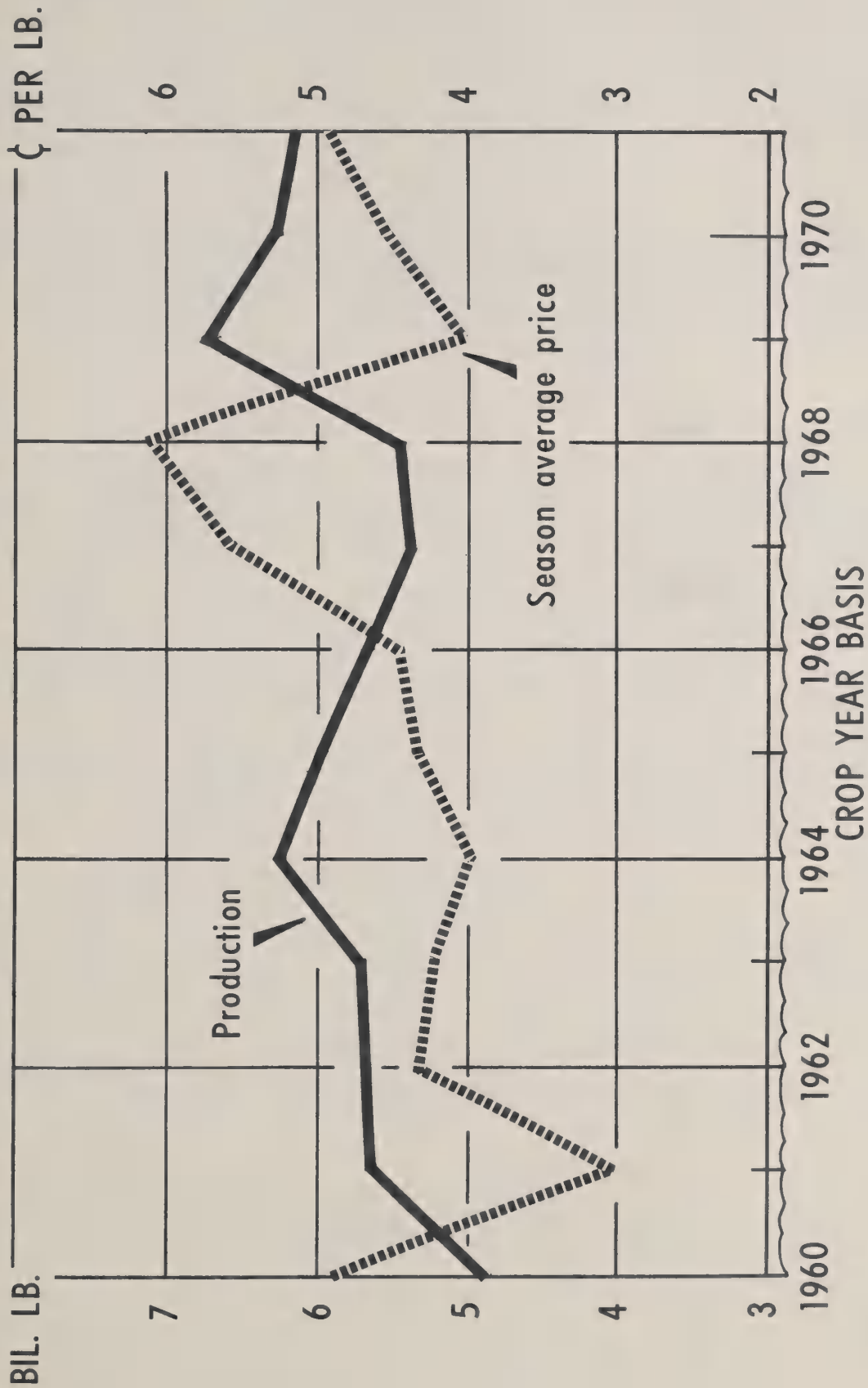
Representatives of the apple industry in all production areas expressed concern over the low level of prices, especially during the past 3 years, and also over having to sell apples to buyers that are apparently larger and more concentrated than are apple growers. It was also pointed out that apples are a perishable agricultural crop that generally have to be marketed during a given season. It is impossible to decide on a price and then meet consumer demands as can be done for most nonagricultural industries. In effect, each season's supplies of apples are predetermined or fixed as a result of production decisions made several months or even years earlier. Prices established in the market reflect supply-and-demand conditions and for a given season may bear little or no relationship to the grower's cost of production.

The main determinant of apple prices is the supply available (fig. 1). Research indicates this is the case at both the retail (1) and grower level (2). 1/ Hence, the primary reason for low price to growers is not poor "pricing" but an oversupply of apples.

The solutions to this problem are to decrease supply, increase demand, and improve market information systems--all of which are discussed elsewhere in this report. There is a need for research studies and published reports of how apple prices are determined. Such studies will not result directly in raising prices of apples, but the resulting information should benefit growers and others by reducing mistrust and resentment of market participants, by providing support for accurate and reliable market information, and by better decision-making on the part of growers.

1/ Underscored numbers in parentheses refer to the references at the end of the chapter.

U.S. APPLE PRODUCTION AND SEASON AVERAGE PRICE



SOURCE: STATISTICAL REPORTING SERVICE, USDA.

Figure 1

Another concern expressed by the apple industry is in achieving a better bargaining position, more "clout," and "improved" pricing in marketing apples. The concern was especially strong at the grower-processor level in western New York and Michigan and at the shipper-retailer level in the Northwest, although all areas indicated pricing was a problem. Generally, there was a feeling there were too many sellers dealing with a lesser number of buyers who were able to exert market power and gain an advantage due to their size.

Nationally, there were 21,290 apple growers, according to the 1969 Census of Agriculture. These growers were marketing their crop through roughly 1,000 firms packing fresh apples and more than 150 firms processing apples (3). In turn, fresh packers and processors sell apples to a concentrated group of national, regional, and local chainstores and a myriad of wholesale and institutional buyers.

Fresh Apples

In terms of marketing channels, shippers indicated that only 5 percent of their supplies are purchased outright from growers, while 31 percent of the crop is handled as their own acreage; 23 percent as a cooperative; and 32 percent on a consignment or handling charge basis (3). In effect, growers are bearing the risk of marketing apples until they are sold either f.o.b. shipping point or at wholesale markets. Generally, grower-shipper relationships did not appear to be a problem. To a large degree, growers and shippers are either the same individuals, or growers at least have a voice in establishing shippers' policies. Some complaints were received that payments to growers are delayed because buyers are slow to pay, but for the most part the grower-shipper level has been vertically integrated to the point where "open market" pricing has been reduced to a minimum. However, without a good working relationship with a shipper, growers are vulnerable in years of excess production.

Other comments were made as to the leadership of the apple industry. Large shippers, sales agencies, and processors are usually active in a leadership role. Goals of these firms are not always consistent with those of growers, and problems can arise if one group dominates in making policy. For example, growers are interested in their net return which is determined only in part by the quantity of fruit sold. The price received and cost of production are also important. Shippers and sales agencies are also interested in their net return. However, their returns are usually based on the volume of fruit packed and sold where the selling price per unit may be of less concern than it is to a producer.

Problems do exist between shippers and their customers, primarily chainstores and numerous wholesalers in the major consuming centers. Excluding 4 percent of the fresh apples handled on a commission basis, prices are established for apples between shipping point and wholesale terminal market (3). Many shippers and sales agencies thought they were at a distinct disadvantage in dealing with the larger chainstore organizations. They felt there were too many sales desks and there was opportunity for large buyers to exploit shippers by playing off one firm against another and the firms in one production area against those in another production area. The possibility of a weak seller breaking a market by selling for 25 cents less was frequently mentioned.

The suggested solution to the above problem is to concentrate the shipping point selling function into fewer hands. Many packers have already done this by using the services of a sales agency and brokers to sell their apples. By consolidating packing facilities and sales desks, economies of scale and size can be realized in both the packing and selling function; better returns can be obtained through the ability to provide full carlots of a single size and grade of apples. There should also be less frequent and less extreme price fluctuations than now exist. Also, producers may want to consider opportunities for joining or forming cooperatives as a means of improving their returns.

In the Northwest a number of cooperatives have been successful, although there is a need for consolidation and merger of some of the less efficient units. A few questions were raised as to the effectiveness of the USDA's Farmer Cooperative Service (FCS). Several co-op managers in the Northwest were not even aware of FCS or the possibility of getting help on their problems.

One solution suggested to consolidating sales desks was the use of marketing boards or committee pricing such as is now practiced in Canada in Ontario and British Columbia. The main drawbacks to the marketing board or committee pricing arrangement are coordination difficulties, especially between different geographic areas; the adjustments that would be required of established sales agencies; and the degree and extent of Government control.

In general, it appears that prices for fresh apples at the farm level and f.o.b. shipping point are established in a "free" and competitive market. At these levels there are many competing sellers with fewer buyers but enough to preclude any major deviation from the free market price.

At the retail level a different situation exists. Major retailers are fewer in number, oligopolistic, and concentrated. Retail prices are "administered" or set according to established markups over invoice costs. These markups are not generally uniform among produce items or even different varieties, grades, and sizes of apples and are varied from time to time when apples are put on sale to draw customers into the store.

The retail markup on apples was of major concern to representatives of the apple industry. Growers feel that retail margins are too large, that they have increased in recent years, and as a result have forced the in-store price of apples up to the point where it is seriously inhibiting consumer purchases. It was also felt that the percentage margin going to retailers has increased relative to the grower's share, that apples are being used to subsidize sales of bananas, and that the produce department in total was contributing a disproportionate share of the retail profits, compared with items such as meat and dry groceries. Concern was also expressed over the "stickiness" of retail prices in response to price shifts at shipping point and the bargaining ability and power of retailers when dealing with the apple industry. There apparently was considerable resentment, mistrust, and lack of information regarding retailing throughout the apple industry. This lack of understanding was more prevalent with growers than with shippers, sales agencies, or wholesalers.

Retailers indicated that they are aware of many of the concerns expressed by the apple industry. They are quick to point out that their costs have been rising rapidly, especially for labor, which comprises over half of their costs,

and that their share of the marketing margin has not been increasing on a percentage basis. (This is supported by USDA figures for Washington State Red Delicious marketed in New York City. Table 7.) They admit that retail prices are not changed each and every time that shipping-point price adjusts but that they do respond to major shifts in shipping-point price. Reasons for not adjusting include costs of remarking, changing unit prices, etc., that are required with a price shift. In addition, advertising and promotion programs are usually laid out 3-4 weeks in advance and cannot be changed easily in response to price shifts for a particular commodity.

Retailers indicated that their markups on apples versus bananas were primarily a result of the effect of specials on sales. Retail sales of bananas increase significantly in response to advertised special promotions at a lower price. However, bananas generally receive a relatively small display space in retail stores. Apples are considered a staple item and are not as responsive to an advertised promotion, but they do receive 12-16 linear feet of display space in the store--second only to citrus. One retailer has indicated the average gross margins on apples are about 33 percent, compared with 29 percent for the produce department. The produce department in total carries a higher percentage gross margin than the overall store average of around 21 percent (4).

One suggestion made by growers was to enact legislation to limit the size of the retail margins on apples to, say, 40 percent. Assuming such legislation could be enacted and enforced (which is highly questionable from an administrative standpoint), the economic implications should be seriously considered by the apple industry. What would happen if the number of linear feet of display space for apples were decreased, especially in big crop years? Would there be fewer specials and sales on apples that help to move the crop? Would there be less incentive to market local fruit in contrast to that of more distant production areas?

Another suggestion given to the Apple Marketing Study Team was to concentrate all apple sales into the hands of one or two marketing boards or sales agencies--the argument being that low retail margins on bananas and dry groceries are a result of policies imposed by the concentrated supplier of these commodities. Retailers indicated this is nonsense, that the profit structure of the banana companies has been extremely poor in recent years and that dry goods require less labor and less spoilage than do perishables such as apples.

A suggestion made by several representatives of large retail organizations was for the apple industry to induce retailers to promote the sales of apples through local radio and TV advertising more frequently than has been their practice in the past.

Recommendations

1. Many growers, packers, cooperatives, and sales agencies are considering consolidating into more viable units as a means of stabilizing market fluctuations and equalizing the bargaining position of sellers and buyers. The USDA and colleges should be ready to provide advice and counsel on the benefits and drawbacks of consolidation. This can be done through FCS, Extension Service (ES), and State extension programs.

Table 7.--Apples, Washington Red Delicious: Season average prices, spreads, costs, and returns, New York City, 1960-61 to 1971-72 1/

Season	Retail price per pound	Retail value per carton	Shipping point-retail spread 2/	Shipping point-price (fob) (returns to grower and packer)	Shipping point price (fob) (returns to retailer)	Packing, storage, and selling cost 3/	Grower returns			
		Dollars	Dollars	Percent	Dollars	Percent	Dollars	Percent		
1960-61:	23.4	9.44	5.38	57	4.06	43	1.75	19	2.31	24
1961-62:	23.6	9.50	5.13	54	4.37	46	1.74	18	2.63	28
1962-63:	23.0	9.26	5.41	58	3.85	42	1.74	19	2.11	23
1963-64:	21.1	8.51	5.15	61	3.36	39	1.74	20	1.62	19
1964-65:	24.9	10.03	5.93	59	4.10	41	1.78	18	2.32	23
1965-66:	25.8	10.39	5.77	56	4.62	44	1.79	17	2.83	27
1966-67:	26.5	10.67	6.21	58	4.46	42	1.80	17	2.66	25
1967-68:	29.6	11.93	5.79	49	6.14	51	1.82	15	4.32	36
1968-69:	34.0	13.71	6.91	50	6.80	50	2.29	17	4.51	33
1969-70:	29.7	11.96	7.70	64	4.26	36	2.34	20	1.92	16
1970-71:	33.8	13.64	7.60	56	6.04	44	2.34	17	3.70	27
1971-72:	34.7	13.99	7.62	54	6.37	46	2.46	18	3.91	28

1/ Combination Fancy and Extra Fancy, size 138 or larger, 42 pounds net weight per tray-packed carton.

2/ Returns to retailer for salable apples (4-percent allowance for loss incurred during marketing process).

3/ Based on f.o.b. packed price minus equivalent packing-plant-door returns for all Washington Apples used fresh.

2. Growers and shippers on occasion need to take advantage of provisions of the Perishable Agricultural Commodities Act (PACA) to demand faster payment for apples where problems are encountered. PACA personnel can help by providing assistance in acting on claims and violations.

3. Apple growers need to develop a firm market for their apples prior to harvest time.

4. The USDA through Economic Research Service (ERS) should expand its current series and provide specialized margins information on apples on a regular basis (every 3-5 years, with more frequent release of data on an annual basis to industry organizations; see discussion of information systems). This should include a more detailed breakdown of prices and margins at intermediate levels of the marketing channels. This will require, and we recommend, that special studies be undertaken of marketing channels, practices, and costs from the tree through the retail level. In addition, periodic studies of market structure and organization should also be made.

5. Studies should be made of the "price structure" or pricing relationships between markets (shipping point, wholesale terminal, and retail) within and between seasons, and between varieties, grades, sizes, packages, and end-users. Emphasis should be on how the prices of apples are determined and to what degree they reflect the true "economic costs" of the various alternatives available. Either the USDA through ERS or other appropriate agencies or the land-grant colleges could provide the necessary inputs.

6. FCS should examine its support program with respect to the apple industry to determine if changes are needed.

Processing Apples

In contrast to fresh apples, most apples for processing are sold either directly by growers to the processor or by fresh packers disposing of utility and cull fruit. Processors are usually relatively large firms that require a large volume of fruit to realize economies of scale and size in both processing and marketing. Price negotiation for processed apples is apparently one-sided with processors announcing their prices on a take-it-or-leave-it basis. Growers are free to take what they can get but historically will usually contract their crop to a given processor to ensure a market outlet. The processing market for apples has been depressed for the past three seasons and growers relying primarily on this market have had to accept very low prices. This is especially true in western New York and to a lesser extent in other areas, including Michigan, California, and Appalachia.

Poor grower-processor relations exist to some extent in nearly all production areas. While it is difficult to pinpoint the reasons for mistrust, the problem of low prices, large buyers versus small sellers, and the negative attitude of a few firms has made for poor working relationships. In addition, processors have been reluctant to pack more than their expected market needs after being left with a burdensome carryover as a result of the 1969 crop.

The solution to low prices, which does reflect a large supply of processing fruit, is to lower production, increase demand, and improve market information systems. Research on how prices are determined in the processing industry would be helpful.

Solutions to poor grower-processor relations are beginning to emerge. In some areas growers have formed cooperatives that have been successful in handling processed apples. Where co-ops are well run and managed, in effect operated like any business, results have generally been favorable. An alternative to the co-op doing the processing is to form a selling co-op that works closely with a processor, usually under a joint profit-sharing arrangement, to the mutual benefit of the co-op members and the processing firm.

Another solution is the development of long-term contracts between growers and processors. This activity is just beginning to emerge but could be important in the future. These contracts also can be tied to a mutual benefit or participation scheme so gains or losses are shared.

The Farm Bureau has also been active in forming bargaining associations to negotiate with processors. While this activity has had some degree of success, gains are limited by nonjoiners and the State or regional orientation of the associations. To obtain more "clout," several bills have recently been introduced into Congress--the more prominent being H.R. 14987 or the Sisk Bill. The bill provides for a National Agricultural Bargaining Board and requires bargaining in good faith between a recognized association and a processor. The bill includes a provision that tends to prevent handlers (processors) from bargaining with other producers while they negotiate with the bargaining association.

Another solution to poor grower-processor relations is complete vertical integration where a grower processes his own fruit or a processor grows his own acreage. There has been some increase in this activity but no sharp upward trend.

Recommendations

1. We recommend that the USDA through FCS, ES, and State extension programs assist apple growers and processors in their efforts to improve pricing arrangements. We also recommend the development of properly financed and managed cooperatives, the development of joint ventures to the mutual benefit of both growers and processors, and the use of long-term mutual participation contracts. If and when legislation such as the Sisk Bill becomes law, we would urge growers to take advantage of the bill and to form bargaining associations. At the same time, possible benefits of bargaining associations should not be magnified since processors have the option of growing their own fruit and basic supply-demand conditions will determine how much product can be sold.

2. Better lines of communications between growers and processors are needed and should be developed at every opportunity. Processors should be encouraged to join and participate in the activities and programs of organizations working for the general benefit of the apple industry.

Problem

The marketing system is more demanding today than it was when apple producers shipped their apples in barrels, baskets, and wooden boxes. Today, apple packaging represents the results of uncoordinated responses to the pressures of daily commercial problems. The result is that much apple packaging requires large inputs of materials and labor; does not adequately meet marketing requirements; does not provide adequate protection; and does not facilitate efficient handling during packing and in distribution to warehouse facilities and end-users

Discussion

The Apple Marketing Team heard many expressions of concern about the shortcomings of the shipping containers and consumer packages used to market apples. Although they agreed that current shipping containers were better than those used 20 years ago, apple growers, packers, shippers, and research workers from all apple-producing regions were practically unanimous in their expressions of dissatisfaction and gave vivid descriptions of the shortcomings of some or all of the packaging now used to market apples. Packaging problems are many-faceted and complex because they affect and are affected by all the marketing functions from harvest to final sale to the consumer.

Shipping Containers.--Currently used shipping containers are the result of a slow evolutionary process. For example, tray pack sizing patterns and dimensions were patterned after their predecessor--the standard wooden box--to minimize the need for changing packing plant equipment and to gain acceptance by a wholesale trade that resisted change.

Apples packed in tray or cell packs are divided into 10 or more sizes. This multiplicity of sizes increases the costs of manufacturing, inventorying, storing, and distributing packing materials and increases the costs of packing, handling, storing, and distributing the packed fruit. Although many growers have tried to reduce the number of apple sizes packed by combining sizes, they have not been successful. Retailers indicated they generally were in favor of fewer sizes. Consumer representatives indicated they wanted exactly sized fruit.

The tray pack and cell pack boxes are expensive in terms of labor and materials required. Despite careful packaging and the lavish use of protective materials, problems with bruising (particularly in the softer Golden Delicious and McIntosh varieties) were frequently reported.

Consumer Packages.--The 3- or 4-pound polyethylene bags used for the medium- and small-size apples were characterized at best as a "necessary evil." The industry believes that the 3- and 4-pound bags help to merchandise the smaller apples but that the poor quality of the fruit sold in these bags is

turning customers away from apples. Spokesmen from Eastern and Midwestern production areas complained more frequently about the performance of the bag as a package for apples than did representatives from the Northwest. Bruising and stem-puncture injuries found on apples are the result of a combination of frequent handling of the shipping containers during distribution and the handling of the bags by retail clerks and customers. Bruising and stem punctures occurring both during and after packaging were the most frequent cause of complaint. Pathological disorders following mechanical injuries such as bruises and stem punctures are also a problem.

Shipping containers used to ship polyethylene bag consumer packages were criticized as inadequate by growers, packers, shippers, and buyers from all production and all metropolitan areas. Most of the shipping containers observed were either poorly designed or constructed of low-cost, low-strength materials, or both. Interior packaging materials were usually inadequate and did not provide the degree of protection required. Private and public inspectors and buyers claimed that much of the bruising found in polyethylene bag consumer packages could have been prevented by better packing procedures and better shipping containers. Prior research has developed methods for packaging polyethylene bags and packing the bags in shipping containers and for loading these shipping containers in transport vehicles so as to minimize damage to apples. However, the trade is not generally aware of the existence of some of the information that would enable them to improve their packaging.

Unitization and Standardization of Shipping Containers.--Apple shipping containers are still handled individually six to 20 times during marketing. These multiple handlings increase the costs of handling, delay delivery to the ultimate consumer, and result in mechanical injury to the apples. The size, shape, and density of packed apple shipping containers do not facilitate the adoption of improved distribution techniques that would reduce the number of times the boxes are handled. The 48- by 40-inch box dimension for wooden pallets or fiberboard slipsheets is now frequently used by the food industry in the United States. A similar base dimension (120 by 100 centimeters) has been adopted by European and international standards organizations. Although more than 40 different size shipping containers are used for U.S. apples, none of the commonly used containers fit the 48- by 40-inch base efficiently. For example, the commonly used tray pack box and 12-3 pound bag box would occupy 83 and 77 percent, respectively, of the surface of a 48- by 40-inch pallet. In addition, because of the empty spaces between trays or between bags in shipping containers, the density of packed apple containers is only about 24 and 18 pounds per cubic foot, respectively. In comparison, loose potatoes packed in boxes have a density of 36 pounds per cubic foot; and loose California oranges are packed with a density of 31 pounds per cubic foot. Efficient low-cost methods and materials for unitizing apple boxes for rail or truck shipment to market are needed. Economical unitization systems would reduce the costs of handling at packing plant and wholesale warehouse levels and would reduce damage done to apples in multiple handlings.

Retail Store Handling.--Retailers seem to handle bagged apples with less care than they handle bulk displayed apples. Although the low temperature

requirements for maintaining quality and shelf life of apples are well known, there is ample evidence that retail store personnel frequently display apples on nonrefrigerated shelves or stack apples too high on refrigerated display shelves. Because the apples are only partially visible, bags with spoiled fruit escape detection and are offered for sale. Retailers said that specially trained produce clerks are now becoming a rarity in the supermarket business. The trend is toward use of nonspecialized clerks who are unfamiliar with the environment and careful handling needed to maintain and protect the quality of live perishable products. There are few training materials available and little is done to encourage management to train clerks to handle apples or other produce properly.

Innovative Packaging.--The perfect package is a goal that manages to keep ahead of developing technology. Current packaging falls short of meeting market requirements in several important ways.

First, consumer packages and shipping containers have not been designed to take advantage of merchandising procedures that would increase opportunities for impulse purchases in retail stores. Opportunities exist for designing self-display shipping containers or containers and packages that combine the sale of apples with complementary products.

Second, there are no packages (or concomitant marketing strategies) for selling apples to the burgeoning away-from-home-eating market. The feasibility of packing and marketing "fruit bowl" mixtures of apples for the restaurant and hotel trade or other types of packs designed specifically for purveyors should be explored. The feasibility of marketing partially prepared ready-to-use apple slices or chunks for hospitals and other institutions should be explored. As more meals are eaten away from home, consumption of fresh apples must surely drop unless the apple industry develops imaginative packaging and products to encourage the use of fresh apples by restaurants, hotels, and institutions.

Third, consideration should be given to the need for reducing package solid waste. Apple packaging contributes about 1 pound of waste material for every 10 pounds of fresh apples marketed. When tray or cell packed apples received in urban areas are repackaged in consumer packages, the problem of waste disposal is compounded by the additional use of packaging materials. Future packaging development efforts will have to consider package disposability and reusability.

Recommendations

Action by USDA

1. Establish a multidiscipline team of Agricultural Research Service (ARS), ERS, and ES research workers to accomplish the following:

- a. Immediate action is needed to improve the performance of polyethylene bag consumer packages and their shipping containers. This job can be done most

quickly by developing and testing improved versions of the polyethylene bag package, including substitute semirigid or rigid consumer packages for medium-size apples; and through demonstration and by distribution of instructions and visual aids to provide growers with specifications for recommended packaging materials and methods for improved packing of shipping containers and consumer packages.

b. Research should also be quickly expanded to develop and test materials that are currently available to enable shippers to unitize shipping containers at the lowest possible cost; and to develop and test low-cost packaging concepts such as adaptations of the "tight-fill" packing method or pallet boxes for shipping loose or bagged apples.

2. Establish a team of ARS research, ES, and Cooperative State Extension Service workers to quickly develop, prepare, and distribute educational materials, training programs, and visual aids that can be used by wholesalers, retailers, restaurants, and institutions to train workers to properly handle, store, display, and prepare loose and consumer-packaged apples. That ARS, ERS, in cooperation with the land-grant colleges and other universities, initiate a packaging research program that considers the total marketing system to develop, test, and demonstrate to grower-packers low-cost packaging that interfaces with, and facilitates adoption of, technological improvements such as mechanical harvesting; is easily and conveniently unitized; can be accomplished mechanically; requires less materials; eliminates repackaging at other levels of the marketing system; permits efficient use of transport vehicles; protects the apples during distribution; satisfies the requirements of wholesalers, retailers, and away-from-home eating establishments; and uses materials that are easily disposed without creating or adding to environmental problems.

Action by Industry

1. Apple growers, shippers, and packers should improve the way apples are handled in the distribution system by:

a. Labeling all consumer packages and shipping containers with clear and concise instructions for good handling and storage practices (i.e., apples are perishable; should be stored at 32° F.)

b. Adopt uniform, legible industry shipping container marking such as that recommended by the Container Committee of the Produce Marketing Association.

2. The apple growers through their industry organizations should establish Packaging Committees to:

a. Establish minimum performance standards for shipping containers and to evaluate experimental containers.

b. Begin the task of reducing the number of apple sizes packed and of standardizing shipping containers.

c. Encourage grower-packers to improve their packaging, handling, and

truck- or car-loading by using the most efficient and best methods and materials that are available.

Transportation

Problem

With the exception of the Northwest (Oregon, Washington, and Idaho), the apple industry uses nonregulated motor carriers or private haulers to move fresh apples to market. The Northwest apple industry ships about 25 percent of its fresh apples in railcars. Truck transportation for fresh apples appears to be generally satisfactory for nearby shipments of 300 miles, or less from the shipping point. As distances increase, complaints about mechanical failures also increase. A number of shippers and receivers cited problems with inadequate air circulation in the loads, thermostat and other failures that resulted in product freezing or high temperature damage, shipping container failure, and abnormal bruising of apples loaded over the rear axles. Another problem frequently cited was the lack of standardization of inside dimensions of highway trailers (some inside widths were too narrow to accommodate 48- by 40-inch pallets efficiently.)

Discussion

Grower-shippers expressed great concern about legislative efforts to remove the agricultural exemption in the Interstate Commerce Act (Section 203 (b) (6)) for trucks hauling agricultural products. They fear that increased regulation will result in an inadequate supply of trucks and higher transportation costs.

The proportion of Northwest apples shipped by rail has steadily decreased since World War II. The percentage of fresh apples shipped from the Yakima and Wenatchee, Wash., districts by rail declined from 96 percent in 1946-47 to only 23 percent in 1971-72. During the same period, rail freight rates increased from \$1.63 to \$2.94 per 100 pounds. Rising freight rates only partly explain the shift from rail to trucks. Shippers also cited faster service, multiple pickup and deliveries, fewer delays, smoother rides, and fewer claims as reasons for using nonregulated trucks for shipment to market. The Northwestern industry feels that despite many problems encountered, it must continue to use rail for most shipments east of the Mississippi.

Although many receivers and shippers praised the eastern rail lines for recent improvements in service and reduction of delivery time (from 11-12 days to 7-8 days for delivery from Washington State to New York City), frequent complaints were heard about delays and long schedules. A Kentucky receiver said he used to get apples from Washington State by rail on the fourth morning (after departure from Washington State) and now they arrive on the sixth morning. (Truck shipments regularly make the same trip in 3 days.) Miami, Fla., receivers plan on 10 days rail transit time for apples purchased in Washington State, but the trip frequently requires 11 to 14 days.

Shippers prefer mechanically refrigerated railcars (RP and RPL types) for shipments, but they must still use ice bunker cars (RS type) when mechanically refrigerated cars are not available. Shippers claim that the water-ice supply services provided by the railroads have been reduced to the point that it is not unusual for railcars to arrive at destination in warm weather with empty ice bunkers. The apple industry has opposed the proposed cancellation of Perishable Protective Tariff 18, Supplement No. 128, which provided for the abandonment of water-ice refrigeration services by carriers, because they believe that the railroads cannot supply enough mechanically refrigerated cars to replace the RS-type cars.

Shippers and receivers claimed that mechanical refrigerator cars arrived with temperatures too high or too low due to mechanical failure. Shippers also said that with so many new shipping containers and new railcar equipment they were not sure which loading patterns would be best to prevent damage and insure proper air circulation.

"Piggy-back" or TOFC (trailer on flat car) service is very popular with apple shippers and apple buyers because it is convenient for both the buyer and seller. This service has not been made available for apple shipments to cities east of St. Louis (eastern and southern territories), although such tariffs have been established for pears and other deciduous fruits.

Another problem associated with the advent of the larger mechanical refrigerator cars has been a disagreement between the railroads and shippers over incentive rates for heavier loads in these cars. Agreement that would provide incentive rates for heavier loads would increase the efficiency of use of loading space in these larger cars and increase rail revenues and reduce transport charges.

Recommendations

1. The USDA, through ARS and other appropriate public and private agencies, should:
 - a. Develop and recommend preloading inspection procedures for mechanical refrigerator trucks and railcars to insure that the controls and refrigerating equipment are operating properly prior to loading;
 - b. Develop and recommend loading patterns for commonly used shipping containers loaded in highway trailers and railcars to minimize shipping container failure and mechanical injury to the apples and to provide for adequate circulation of refrigeration air;
 - c. Develop methods, techniques, and materials to reduce the width of highway trailer sidewalls to 2-3 inches instead of 3-4 inches so as to increase available loading space and permit the loading of 20 48- by 40-inch pallets instead of only 18 pallets;
 - d. Develop improved air circulation systems and other improvements in refrigerator cars and trucks to reduce freezing and overheating; and

e. Develop ways of reducing the magnitude and number of shocks transmitted to fruit during rail and truck shipment.

2. The apple industry and the railroad industry should establish working committees whose objectives would be to increase communication between the two groups, identify those areas where interests coincide, eliminate or modify the "adversary" attitudes that now exist, and

a. Explore the possibility of developing "fast trains" to large metropolitan markets or other improvements as a means of obtaining better and faster service;

b. Develop a realistic freight rate structure that would result in increased total revenue and profits;

c. Identify service problems and help the railroads develop ways to improve service; and

d. Develop a realistic program and time schedule for phasing out ice bunker car service.

Market Information Systems

Market information is essential to the apple industry for both shortrun and longrun decisionmaking. The information available currently is probably better than in any other country of the world, and the industry, colleges, and USDA would be severely hampered without it. However, it is always possible to make the best "better," and the following discussion concerns suggested improvements that are needed to improve market information. The programs of individual USDA agencies are discussed in turn.

Agricultural Marketing Service (AMS)

The Agricultural Marketing Service through the Federal-State Market News Service collects information on daily f.o.b. prices and shipments and wholesale terminal market prices and unloads.

Presently no Federal Market News information is available on apples from eastern New York, including the Hudson Valley and Lake Champlain area, nor from the New England States of Maine, New Hampshire, Vermont, Massachusetts, Connecticut, and Rhode Island.

A daily New York, New England apple report could be provided from the existing office at Boston. Financial participation on the part of the State agencies would be needed as well as cooperation from the growers and shippers. The report would be similar to that issued at Martinsburg, W. Va., covering the four Appalachian States of Pennsylvania, Maryland, Virginia, and West Virginia. If State funds were made available, this report could be implemented immediately.

New York State production in the Hudson Valley and Champlain area is not reported by Federal-State Market News. If cooperation with the State of New York could be obtained, reporting of those districts would give Market News complete coverage of the State. The Rochester Federal-State office already reports western and central New York apple production. The State provides some apple information but not on a daily basis.

Daily rail shipments data on apples are presently available only from the Northwest (Oregon, Idaho, and Washington State), while weekly truck shipments are reported only for the Northwest and Appalachia. There is an urgent need for daily coverage of rail and truck shipments of apples for all other areas of the country and especially for Michigan, New York, New England, New Jersey, and North Carolina. Market News indicates much better service could be provided by daily service, and funds should be provided for long distance phone calls and personnel so that shippers and grower-shippers in major production areas can be contacted. It is urged that Market News coverage of daily fresh shipments be extended to all production areas for both rail and truck.

A further extension of Market News shipments coverage could be made by including information on varieties and sizes of fruit shipped in addition to the volume data. The Washington Growers Clearing House provides a good example of what might be included in shipping point reports.

Another concern of the apple industry is the complete lack of information on the movement of apples to processors, especially during the fall months before storage reports are available. Citrus reports from Florida provide information on daily utilization of citrus by processors; similar type data would be of benefit to the apple industry. Several processors also indicated the need for information on weekly shipments of processed products. Both types of information could be collected by Market News with a single phone call.

Some interest has been expressed in data on shipments for export. Transportation agencies handling shipments for foreign markets could provide Market News with current reports of products loaded for overseas shipment. The apple industry might persuade the originating carriers to provide these records to Market News for consolidation and release.

Suggestions regarding Market News prices were scattered. If possible, it would be desirable to obtain the volume associated with quoted prices, as is done on a weekly basis by the Washington Growers Clearing House. There was some concern over the completeness of Market News coverage in one region and generalization over the reliability of quotations in certain wholesale terminal markets. The apple industry should bring these problems to the attention of Market News Service so that any problems could be resolved.

There is a complete lack of USDA price statistics on processed apple products at the canner level. Available data are skimpy and are generally based on price lists from a few processors. Accurate weekly or monthly f.o.b. shipping point prices are needed on applesauce, canned slices, frozen slices, and apple juice. The Market News Service could provide the vehicle for reporting this information.

Economic Research Service (ERS)

The Economic Research Service publishes data on per capita consumption, marketing margins, and the market basket. U.S. average retail price, farm value, and total marketing spread for fresh apples are maintained as part of the market basket series. These are calculated monthly and published quarterly. They are averaged annually for a calendar year. Monthly retail prices are reported by the Bureau of Labor Statistics (BLS) as part of its cost of living price index. Monthly farm prices are reported by Statistical Reporting Service (SRS).

Prices are collected for specific varieties of fresh apples at the shipping point, at selected wholesale terminal markets or auctions, and at retail in corresponding cities. Retail prices are collected by BLS under contract with the Marketing Economics Division of ERS. Wholesale or auction prices and shipping-point prices are obtained from AMS Market News reports. These prices are collected monthly during the marketing season and averaged for the season.

Prices and price spreads are collected for the following varieties:

Washington Red Delicious--Sold in Chicago, Los Angeles, New York, Seattle, Extra Fancy, size 138 or fewer per tray packed carton. Season: Sept. through June.

Washington Winesap--Sold in Los Angeles, Minneapolis, Seattle, Extra Fancy, size 138 or fewer per tray packed carton. Season: Nov. through July.

Eastern Red Delicious--Sold in Atlanta, New York, and Pittsburgh, combination U.S. Extra Fancy and U.S. Fancy, size 138 or fewer per tray packed carton. Season: New York - Oct. through May; Atlanta and Pittsburgh - Oct. through Jan. (In New York City, prices are predominantly for New York State apples; in Atlanta and Pittsburgh, predominantly Appalachian apples.)

Eastern McIntosh (bagged)--Sold in Boston, New York and Pittsburgh, U.S. Fancy, size $2\frac{1}{4}$ inches and larger, 12/3 lb. film bags per carton. Season: Nov. through May. (Prices are for New York State apples.)

Midwestern Jonathan (bagged)--Sold in Chicago and Detroit, U.S. Fancy, size $2\frac{1}{4}$ inches and larger, 12/3 lb. film bags per carton. Season: Oct. through April. (Prices are for Michigan apples.)

Prices are also collected for a No. 303 can of fancy grade applesauce sold in Detroit and Pittsburgh. Retail price, processor f.o.b. price, and farm value are collected each 3 months during the marketing year beginning in September.

Much improvement could be made in both the retail price and farm price of apples used in the market basket series. The retail price collected by BLS is

for all-purpose apples, excluding all varieties of Delicious apples. Red and Golden Delicious represented about 40 percent of the 1971 apple crop. They represented an even greater proportion of fresh market sales. Excluding Delicious results in a price not representative of the fresh apple market. It is recommended that BLS include all varieties of Delicious in apple prices collected.

The U.S. farm price of fresh apples reported by Statistical Reporting Service (SRS) is not representative of fresh apple prices at any one point in their distribution. It would be helpful if SRS would report equivalent apple returns in all States at the same point in their distribution so as to have comparable prices in all States (see SRS below).

Auction prices on Washington Red Delicious are used in computing margins in New York City and Chicago. There is concern that the auction price is no longer representative of these wholesale markets. It is recommended this be investigated and alternative bases developed if needed.

BLS retail prices on applesauce include only two cities and no other apple product. It is recommended that other cities such as Los Angeles, New York, Atlanta, etc., be included in the applesauce series and that apple juice prices be included also. Apple juice has increased sharply in importance since 1968. Over 14 million cans of apple juice were packed in 1970--50 percent more than in 1968.

Margins for both fresh apples and processed products came in for a considerable comment during talks with the apple industry. A periodic indepth analysis of apple margins is needed concerning trends, marketing practices, market shares, market structure, market channels and conduct, and cost components, including harvesting, storage costs, containers, transportation, packing charges, selling costs, ect. Margins data should be published annually through USDA reports such as the Fruit Situation or at least made available to industry organizations on both a national and regional level. Present information on margins is not published frequently enough nor is it reaching the industry in a convenient form. As a result, there is a major information gap which is causing mistrust and suspicion among different firms in the apple industry.

There were no complaints or suggestions with regard to consumption statistics.

Statistical Reporting Service (SRS)

The Statistical Reporting Service estimates the size of the apple crop by State and collects statistics on production, farm disposition, price, value, and utilization of apples. These statistics are of considerable use to the apple industry. The crop estimates data in particular have a major role in establishing prices each marketing season. Because of their impact, suggestions were numerous with regard to crop estimates. These ranged all the way from doing away with the reports to the need for moving from a subjective to an objective survey. We recommend the latter and not the former. Doing away with the report would soon result in chaotic marketing and distrust by firms not able to collect their own market intelligence. A lack of market information,

coupled with the cost of obtaining information privately, would soon lead to only a few of the major firms participating in establishing prices in the industry and considerable complaint and criticism over the process.

Strong interest was expressed from all sections of the country in "better," more accurate crop estimates. There is a need for an objective crop estimate for apples, with detailed information on some of the major varieties and the size distribution of the crop. Acreage information should also be included.

Production forecasts currently prepared by SRS are made by interpreting nonprobability mail survey indications through the use of regression and trend charts. An inherent weakness in this approach is the lack of probability sample from which the mailed indications are obtained. In addition, and more importantly, the information reported by growers responding is a subjective evaluation. Frequently, the subjective approach does not adequately measure large changes in production. In those years when the supply of apples changes significantly from the preceding year, the need for reliable estimates is greatest. Changes in production of this type are the most difficult to measure.

Methodology is available for strengthening and improving the accuracy of the apple production forecasts issued by SRS. An objective fruit count, size, and droppage survey--combined with an annual update of the acreage and number of apple trees by type, standard and dwarf--is needed to improve the reliability of the production forecasts.

Georgia currently is not included in the apple crop estimate. Based on the 1972 "guesstimate" of the International Apple Institute, production in Georgia will exceed that of 11 other States where crop estimates are available. It is recommended that Georgia be included in SRS crop estimates.

A statistic that caused confusion and complaints from industry organizations, apple growers, and others is the price per pound for apples. The news media commonly interprets this data as the average price to farmers; growers are quick to point out this is not the case.

The U.S. price of fresh apples reported by SRS is not representative of fresh apple prices at any one point in their distribution. Prices for Washington and Oregon are equivalent returns at the packinghouse door; for California, at the first delivery point; and for other States, at the point of first sale (which may be anywhere from on-tree to packed at shipping point). Thus, the U.S. average price is not representative of grower prices. Attempts should be made to have SRS report equivalent apple returns in all States at the same point in their distribution so as to have comparable prices in all States. Equivalent returns at the packinghouse door for fresh apples would also be comparable with processing apple prices reported by SRS. We recommend a thorough review of the price statistic and would suggest that a f.o.b. statistic on fresh apples be published, plus a separate farm level price, where available. For processing apples, the processing plant entrance is the logical pricing point. An all-apple price per pound should be clearly footnoted as to what is and what is not included in the price. Weighting factors and the aggregation of monthly prices into an annual price also need scrutiny.

The Statistical Reporting Service has been providing information on a tree census by regions throughout the United States. This information is a valuable decisionmaking tool for growers. It is absolutely necessary if SRS is to provide better crop estimates and serves as an excellent source of information for researchers studying supply response and making projections as to the future course of the apple industry. The Northwest refused to cooperate on the latest attempt by SRS to provide a tree census in that region. The Marketing Team recommends they reconsider this decision.

Both SRS and the International Apple Institute (IAI) publish monthly reports of cold storage holdings of regular atmosphere and controlled atmosphere apples. SRS data are collected as part of a cold storage report that covers all commodities, including meats, fruits, vegetables, etc. As a result, the data are limited to total pounds by region or State and type of storage, without any reference to the variety of apples or expected end use, whether fresh or processed. SRS data are public information and available to anyone upon request.

Data are collected by the IAI solely for the apple industry and do include detailed information by regions, States, type of storage, expected end use, and variety. The information is available primarily to members of the International Apple Institute, although IAI has been generous in providing copies to interested researchers. The IAI data have an excellent reputation and are considered quite complete and reliable by most users. In effect, IAI is duplicating the information provided by SRS on apples while supplying additional detail on varieties and expected end use of the fruit. We recommend that SRS and IAI get together and systematically review their procedures to determine if some sort of mutual program can be worked out to eliminate duplication and strengthen the reports. One suggestion would be for SRS to contract with IAI for the apple storage information. Provisions would need to be made to ensure the reliability and continuity of the data series in the event the contractual arrangement was terminated.

The annual utilization statistics for apples, as published by SRS, are not sufficiently definitive to reveal the specific processing outlets to which apples are directed each season, i.e., sauce, slices, baby food, cider, juice, etc. Aside from its value for examining historical trends, the availability of such background data would be extremely useful in evaluating the prospective utilization of the oncoming crop, once the size of the crop is known. This analysis, in turn, provides an opportunity for individuals within the apple industry to establish marketing plans and policies for the new season.

At the conclusion of each marketing season, SRS publishes the utilization of sales by States and regions as well as a national total. The utilization categories as published are as follows:

- Fresh Sales
- Canned
- Dried
- Frozen
- Other Processed

Unfortunately, in a number of States, quantities canned, dried, or frozen are included in the "other" processed in order to avoid disclosure of individual operations.

The "canned" category includes a host of product uses such as canned sauce, slices, baby food, and baked apples. The "other" category includes, in addition to the nondisclosure items, apples used mainly for cider, juice, and vinegar. This problem has been particularly acute in the case of juicing apples. Although it is well recognized that the juicing outlet has undergone tremendous growth in recent years, the "other" category, in which juicing apples now fall, contains a mixture of too many other items to permit a reasonable approximation of apples used for juice.

U.S. Department of Commerce (Bureau of the Census)

In the 1969 Census of Agriculture, data were gathered on tree fruit, including apples, with detail on number of farms reporting, acres in trees or vines of all ages, and trees of bearing and nonbearing age. For several tree fruits, including peaches, pears, cherries, plums, and prunes, further detail was obtained by major varieties, such as Clingstone peaches or Bartlett pears. In the 1974 Census of Agriculture, it is recommended that a similar breakdown be obtained for apples such as Red Delicious.

Recommendations

Improved marketing information is needed for apples. USDA agencies for information are AMS, ERS, and SRS. Highest priority should be placed on AMS shipments data; ERS margins; and SRS tree census, objective crop estimates, apple price statistics, and storage data. Specifically, we recommend:

1. That AMS, through the Federal-State Market News Service,

a. Extend daily coverage of rail and truck shipments of fresh apples to all major production areas and consider the possibility of including information on varieties and sizes of apples shipped, in addition to volume data;

b. Establish a daily New York, New England apple report in cooperation with State agencies and members of the apple industry;

c. Attempt to develop coverage of daily or weekly movements of apples to processors;

d. Report data on fresh apple shipments for export; and

e. Collect weekly or monthly f.o.b. shipping-point price information on applesauce, canned and frozen slices, and apple juice.

2. That ERS

a. Expand its current series and provide specialized margins information on apples on a regular basis (see above and the section on pricing);

b. Contract with the Bureau of Labor Statistics to collect data on retail prices of Delicious apples for the Market Basket series;

c. Contract with BLS to collect data on retail prices of applesauce in additional cities and extend coverage to apple juice; and

d. Review the reliability and representativeness of auction price statistics used in computing margins.

3. That SRS

a. Strengthen its apple crop estimates by moving from a subjective to an objective survey;

b. Thoroughly review its monthly and annual average price statistics and attempt to unscramble data pertaining to f.o.b. shipping point versus "farm level";

c. Confer with the International Apple Institute and see if a mutual program of reporting storage information can be worked out to the satisfaction of both parties;

d. Report acreages of apples and estimate the number of bearing trees annually;

e. Include the State of Georgia in its apple crop estimates; and

f. Publish a more detailed set of utilization statistics from the processing sector:

Canned--

Sauce

Slices

Baby food

Other (including baked apples, apple chunks, pie mixes, etc.)

Dried

Juice--

Hot-pack concentrates

Other (including frozen concentrates, canned or bottled single-strength juice or cider)

Other--

(including all miscellaneous items such as mincemeat, vinegar, etc.)

In order to avoid the disclosure problem, SRS could confine its annual reporting only to those key States where disclosure is not an issue. At the very least, national and regional totals should be provided.

4. That the USDA request additional detail on apples in the 1974 Census of Agriculture.

Extension

Problem

There is a need for the Extension Service to organize personnel in the field to expand work on marketing education programs for the apple industry.

Discussion

Several recommendations in this study include concentration on educational programs with apple producers, fresh market packers, processors, and retailers. These include areas of labor and financial management, planting and tree removal, improvement in quality from initial production through marketing channels, and analysis of marketing alternatives and methods.

Testimony heard by the Apple Marketing Study Team indicated that many growers were not well informed about marketing, did not understand the significance of many different types of marketing organizations, and were not aware of the experiences of other fresh produce commodity groups with large cooperative marketing efforts or with marketing orders. There is an urgent need for dissemination of information on marketing to growers. For example, growers need current information on the advantages and disadvantages of consolidated packing or sales agencies and of marketing orders.

The educational arm of the USDA, the Federal Extension Service, lacks staff resources and the appropriate contact points to attack these industry problems directly. State extension staffs are primarily State-oriented and even in many large apple-producing States lack the appropriate personnel to develop an effective industrywide program. However, a coordinated program to take advantage of the personnel in different States to develop materials and possibly even present information industrywide would be a more efficient use of resources and would also provide for the necessary expertise in each subject matter area.

One of the big hurdles to effective coordination is the fragmented location of the industry in which the four largest producing States are noncontiguous and spread from one side of the Nation to the other. In none of these States is the industry large enough to command a major extension programming effort, particularly when the problems of the industry cannot be overcome within State boundaries.

A meaningful educational program for the apple industry has to be developed on a national basis with multistate cooperative endeavors. This is not being done.

Solutions

1. Extension Service personnel should provide the leadership to develop teams of Federal, State, and industry personnel to set educational goals and

assign responsibility to prepare and present materials for a coordinated industrywide educational program on marketing. Problems in implementing this effort include lack of cooperation of State extension directors who do not consider apples a significant enough commodity in their State for concentrated educational efforts and the funding of out-of-State expenses for State extension staff.

2. Increase Extension Service staff to prepare extension materials for dissemination by State personnel.

3. Change the funding of the Federal contribution to the respective State Cooperative Extension Services to a problem-wide programming approach addressed to national industry problems. This would eliminate the present fragmentary approach arising from each State going its own direction.

Recommendation

Although solution (3) might be the preferable longrun approach to financing extension efforts in problem areas, solution (1) could be implemented rapidly and would receive State and industry support and cooperation.

Coordination of Economic Research

Problem

Research efforts in the USDA and the State Agricultural Experiment Stations lack coordination and complementarity on the key longrun problems of the apple industry.

Discussion

Research on all aspects of the apple industry originates within the State Agricultural Experiment Stations. One of the key problems is the lack of coordination between stations and the absence of interdisciplinary approaches within stations. Apple research efforts need greater coordination to achieve maximum benefits per limited dollar expended. They include varietal development; tree form and size; pest and disease control; harvest, storage, packing, and processing; handling, transportation, and warehousing; store sales and consumer acceptance. The coordinating links between these segments are lacking.

A recent ARS paper compares the opinions of horticultural research personnel on needed research on apples with actual research underway as reported in Current Research Information Service reports (5). A lack of continuity between the two is evident.

Another recent paper attempting to analyze the economic potential of the apple industry in the Four Corners region (Utah, New Mexico, Arizona, and Colorado) drew together material from five different State production cost

studies (6). It was extremely difficult to obtain comparability because of the different approaches of research and extension personnel to the same objective.

The role of the Cooperative State Research Service (CSRS) is to coordinate regional and national research programs. There appear to be two problems in implementing this system to apples.

1. The administrative advisers on the research committees have not been aggressive enough to ensure that total industry problems are being faced. More commonly the committee members develop a research proposal considering their own research interests; key problem areas can be easily left untouched and full interdisciplinary cooperation may be lacking.

2. The regional structuring of the initiation of research proposals hinders development of such proposals on apple problems because the apple industry is nationwide with the major apple States all in different regions. Washington State is in the Western region, Michigan in the North Central, Virginia and North Carolina in the Southern region, and New York and Pennsylvania in the Northeastern region. One of the major apple-producing areas--Appalachia--is split between two regional associations of State Agricultural Experiment Station directors. When regional projects must be spawned within this system and receive regional approval before submission to the Committee of Nine, it is easy to see why there is little coordinated research for the apple industry.

Solutions

1. CSRS and the Committee of Nine should make a special effort to encourage national research programs for commodities such as apples when production is nationwide. Administrative procedures should be set up to encourage this coordination.

2. CSRS should become more critical of regional research proposals to ensure that regional research is being focused on industry problems and that research personnel are not simply using the funding "umbrella" to do what they would "like to do" with little regard for industry priorities. This may be an area where more input on research priorities should be received from industry sources rather than simply from the research personnel themselves.

3. The apple industry should seriously consider increasing its support of research in public institutions. The USDA and colleges have been accused of becoming less industry-oriented and more people-oriented in their research efforts. This is a reflection of changing priorities over time and will be even more relevant in the future. It will be highly desirable and necessary for the apple industry to sponsor production and marketing research in the future.

Funds for research can be raised as they are for promotion programs through self-assessment. Marketing orders, special legislation such as a research and promotion act for apples, or voluntary contributions could be used as a source of funds. In addition, the industry organizations may wish to expand their staff and do more research internally. The Florida citrus industry is a good example of an industry doing some of its own research.

4. Within the USDA and between the USDA and the State experiment stations, better coordination can often be achieved through exposure and by improving communication. Luncheons, seminars, and opportunities to work with personnel in other USDA agencies and in other disciplines should be encouraged. One of the benefits of the Apple Marketing Team has been the opportunity for interdisciplinary exposure for the personnel attending the regional meetings and for the members of the team.

Another area for improvement is the relevancy of research to the needs of the apple and other industries. Too often researchers have been working in a vacuum and have generated publications to be used by other researchers and not industry. Reports frequently are highly sophisticated, mathematically and theoretically oriented documents that will earn the esteem of fellow members of the profession but leave the industry frustrated. A careful screening of research proposals is needed to separate "like to do" projects from those that will better meet the needs of the apple industry.

Recommendations

1. This committee is not in a position to make specific recommendations to CSRS on how to remedy the uncoordinated efforts apparent in the apple research area. An awareness of the problem by CSRS and efforts toward solutions (1) and (2) would be a substantial move forward. Some of the types of coordinated economic research activities that are needed include:

- a. Regional analysis of production costs and efficiency.
- b. Regional harvesting, storage, packing, processing, and distribution cost and efficiency studies.
- c. National and regional analysis of expected returns, market requirements, and demand.
- d. A study on supply response in the apple industry. How rapidly and to what extent do growers respond to higher prices?

2. The USDA, through CSRS, ERS, ARS, and other agencies, in conjunction with the colleges and universities, should provide leadership and financial support toward improving current economic research on apples. A considerable volume of high quality research is currently available or in progress. The need is to coordinate efforts nationally rather than regionally or limiting a study to a single State. Also, there is a need to continually update research and not just limit it to "one shot" studies or "like to do" projects that may not be focusing upon the real problems of the apple industry. We recommend that the apple industry move in the direction of solution (3) and take a more active role in supporting research, both internally and publicly.

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DOMESTIC DEMAND

Introduction

Grower prices are based on the supply of apples available and on the demand for apples at the farm level. Demand at the farm level is directly related to the demands of consumers for fresh apples and processed apple products. Therefore, it is extremely important to growers that every effort be made to expand the demand for apples. This section considers the possibilities for market expansion in four areas: Consumer needs and promotion, new apple products, improved Government purchase programs, and roadside marketing.

Consumer Research, Market Expansion, Promotion

Problem

A successful promotion program requires a consistent, good quality product attractively merchandised at a reasonably competitive price. These essential ingredients are sometimes lacking in the marketing of fresh apples at the retail level. Equally vital for success is the need for a promotion program based on sound market research. The latter is rarely present in current apple promotion efforts. Another weakness of these efforts is their fragmented approach. Many of the promotional efforts are conceived and carried out by State or regional groups apparently without integrated strategy or programs. Funding is a perennial problem with all agricultural promotion programs. However, the funding for apple promotion appears to be particularly inadequate in comparison with successful programs, such as those for dairy products.

Discussion

The two primary targets for apple promotion are the household market and the away-from-home market. Each of these large markets needs to be treated separately promotionwise because each has different requirements in terms of product form, quantities, use patterns, package size, and so on. However, the fundamentals for successful promotion--quality, availability, and price--are the same for both market segments.

While a fairly sizable number of apple industry people spoke in favor of stronger, better conceived, and better financed regional and national promotion programs, the prevailing attitude seemed to favor a locally controlled and planned grassroots program. This attitude, in part, reflects the differences in varieties produced in the major regions--Northwest Delicious, Michigan Jonathans, New York McIntosh, etc.

A major drawback of State programs is that many States do not participate fully in promotion programs. For example, States such as Idaho, Utah, Illinois, Wisconsin, and North Carolina find it difficult to join in a combined effort with nearby States to promote apples. As a result, the total dollars, efficiency,

and effectiveness of many of the promotion efforts are severely hampered relative to what could be done with more formal and broader regional programs. A few comments were received indicating that there were too many agencies or associations promoting apples now. Fewer but better conceived programs might be more effective.

The household market represents the volume market for fresh and processed apples and apple products. Yet, there was general agreement that promotional efforts were guided by "seat-of-the-pants" observations rather than scientific study. Serious questions were raised on "Why must apples be red?" "Why don't consumers buy apples?" or "What do consumers want in apples?" Shifting emphasis from promoting apples on a varietal basis to promoting apples on the basis of health benefits and flavor also was mentioned frequently at the regional meetings.

The question of red color was a sore point in the industry. Even in Washington State, whose advertising commission made the Red Delicious variety the symbol of a good apple, there was disagreement on the merits of all red apples. Total emphasis on red color is detrimental in several ways. It affects quality adversely because growers tend to delay picking so that the fruit will show as much color as possible. This practice often results in overripe apples at the store level. The sale of the green Granny Smith variety imported from Australia is evidence that apples do not have to be red if they have good flavor and texture, are otherwise acceptable, are brought to the attention of consumers by good promotion, and are offered at a competitive price. The California Apple Advisory Board's "ugly apple that tastes good" campaign also exemplifies an imaginative approach in this area. On the other hand, retailers were in substantial agreement that uniform red color is an important element in impulse buying. That is to say, where apples are concerned, customers "buy with their eyes." Merchandising research studies bear out this contention to a large degree. This attitude by retailers could be a major handicap if the apple industry attempts to deemphasize color in future promotion programs. However, the question remains as to the origin of retailer and consumer attitudes. If promotion efforts have created the red apple image to the detriment of quality, it may be time to promote apples of all colors--green, yellow, green and red, as well as red.

At the regional meetings a strong feeling prevailed that the apple industry knows very little about its customers--household or institutional. Comprehensive indepth studies in these areas on a national or even regional basis have not come to the attention of the Apple Marketing Team. Such studies are basic to any market expansion planning and efficient use of scarce funds. Data from such studies could be used in planning promotional campaigns, penetrating household and away-from-home-eating markets more effectively, and guiding new apple product development.

For example, studies conducted for the dairy industry's promotion program research base employed three levels of analysis. The first of these is called "people profiles." Here the individual consumer's general orientation toward food is determined. The second level of analysis raises the question of the profiles associated with particular foods. Various foods have widely differing profiles. Milk, for example, is heavily "endowed" with nutrition concepts. The interrelationship between the two types of profiles--people profiles and product profiles--provides some answers as to target populations for specific products.

The third-level analysis seeks to determine what factor or combination of factors triggers the acceptance, that is, purchase or rejection of a particular food. With such information in hand, the apple industry would have a better basis for developing and carrying out more effective promotional campaigns.

In all fairness, much good work has been done in promoting fresh apples. Yet, these efforts have fallen short for the most part because they pit regional apples against regional apples rather than focus on the customer. While strong local or regional programs are essential to the evolutionary development of a national program, progress in this regard has been slow for apples. Greater efficiency and productivity probably could result from more nationally coordinated promotion and stronger regional programs. Several comments were directed toward livening up the promotion program for apples. Many of the current programs have become "old hat," don't appeal to younger consumers, and generally are not as effective as they could be. In addition, far too much effort is put on grower relations--advertising in localities where growers are concentrated and not where consumers are concentrated. The effective program should aim at major population centers and 220 million consumers--not at 21,290 apple growers. Growers pay for the program, of course, but they also should get their money's worth. The picture is much the same for processed apple products. Processed apple promotion is done by individual firms and the Processed Apple Institute. Processed apple products, compared with other processed food commodities, are a poor runner-up in programs devoted to consumer education and advertising.

Fundings of apple promotional activities, more often than not, were cited as inadequate for an effective market expansion program. Authoritative financial data are not available. A best guesstimate by industry sources as to annual promotion expenditures is as follows:

	<u>Million dollars</u>
Washington	1.50
New York	.30
Michigan	.25
Virginia	.18
Pennsylvania	.01
California	.10
New Jersey)	.01
North Carolina)	
Others	<u>.01</u>
Total, State apple promotion	<u>2.36</u>
Processed Apples Institute (PAI)	.10
Industrial firms	<u>.50</u>
Grand total, fresh and processed	2.96

The almost \$3 million spent on promotion annually by the apple industry includes overhead monies diverted to national organization activities. Compared with other commodities such as dairy or cotton, the amount seems modest. While it is difficult to determine the right amount to spend on promoting apples, the declining per capita consumption rate on fresh apples suggests that more should be done in this area.

Another aspect of apple promotion is the difference in demand elasticities for fresh apples compared with processed apple products. Most of the promotion money spent by State groups goes to promote fresh fruit, while the retail demand for processed products is much more elastic and, therefore, has greater potential for increased consumption through promotion.

The apple industry has barely scratched the surface of potential demand for apples in the away-from-home market. The rapidly expanding market for food away from home--the food service industry--suggests that eating out is becoming more commonplace and that the share of the market for food away from home is increasing relative to the total market for food. A recent USDA study estimated that food service establishments utilized foods having a retail value of \$35 billion. ^{1/} The significance of this market is apparent when compared with the value of all food consumed. The retail value of food moving through food service outlets was \$172 per person, or a little less than 1 of every 3 food dollars.

Apples and apple products do not have the above market share as is true of many other food products. Demand for apples and apple products in the away-from-home market apparently has not developed to the same extent as demand for these foods in the in-home market. Consumption of fresh apples is less than one-half pound per capita in the away-from-home market. This suggests that the market for food away from home must be given special emphasis, if total demand for apples and apple products is to continue strong in subsequent years. It is important that apple producers and marketers evaluate changes in eating habits and the effects such changes have on long-term demand for apples and apple products.

Three action-oriented courses should be implemented: (1) Study changes in eating habits as they concern apples; (2) establish or increase sales promotion and advertising budgets and direct their activities toward building demand in the away-from-home market; and (3) initiate research and development activities geared to development of new apple products which lend themselves to the changing conditions and food requirements of the food service industry.

A profile of heavy and light users of apples and apple products which may be used in these programs, especially as a basis for determining the direction of the sales promotion and advertising thrust, is available from the food service industry study. Basically, such institutions as hospitals, rest homes, and universities account for a much larger share of apple consumption in the away-from-home market than do the fast service and public eating places. The rapid growth of convenient, fast-serve foods at both the retail and eating-out levels emphasizes the need for information on the position of apples in this changing market and the areas of greatest potential for apples in the future.

Solutions

Market expansion activities offer a likely means of generating higher returns to growers by increasing the demand for apples. This can be done in several ways:

^{1/} Separate Eating Places: Type, Quantity, and Values of Food Used. Statist. Bull. 476, U.S. Dept. Agr., Nov. 1971.

1. Conduct an indepth appraisal of consumers to determine their needs and requirements to expand market demand for apples. Industry can then make a concentrated effort to produce fruit to meet those needs.

2. Conduct an indepth appraisal of the hotel, restaurant, hospital, food remanufacturer, fast food service, and other present and potential institutional users concerning their present and future needs and requirements for fresh apples and processed apple products. Then, follow with action by the apple industry to meet those needs.

3. Fresh apple promotional programs should be greatly expanded. Part of the program should be consumer oriented and would feature the good-tasting apple: firm, crisp, and juicy. There should be emphasis on health, flavor, consumer education on varieties and use (refrigeration), natural food fad developments, and new products which have appeal to teenagers, older people, and the fast-growing away-from-home market. Attempts should also be made to reach consumers not eating apples. The consumer program should be national in scope and could be financed through State or Federal marketing orders by an assessment of 1 cent per box. Part of the promotion program would be regional in scope but not predominantly State oriented as it is now. The regional programs presumably would continue to provide material to retailers, etc., with emphasis on particular varieties. However, ways of injecting new ideas and approaches should be considered to insure maximum effectiveness.

4. Processed apple products have not penetrated the fast-growing away-from-home market as successfully as other food products. Part of the problem may be due to the relatively small promotional program for processed apple products compared with other commodities. After research has pinpointed target markets, all segments of the industry, fresh and processed, should assess themselves so that an adequately financed promotion campaign for processed apple products can be handled.

5. One successful way to find out what the customer wants in the away-from-home market is to ask him. While it would be difficult to do this on a company-by-company basis, it can be done collectively through associations and other special interest groups. Representatives of such groups as the National Restaurant Association, International Food Service Manufacturers' Association, American Dietetic Association, American Hospital Association and National Industrial Cafeteria Managers' Association probably would be glad to express their views on apples as they relate to their particular industry segment. Thus, it is proposed that an advisory committee be set up composed of members of each of the associations with an input in the food service and baking industries. This committee would advise the apple industry concerning ways and means of expanding markets for apples in the away-from-home market.

6. Develop an advisory board composed of representatives of all commodity groups, such as the Cling Peach Advisory Board, Florida Citrus Commission, etc., to determine what areas of joint cooperation can be developed from a total promotional standpoint.

7. The apple industry should develop closer working relationships between State, regional, and national organizations, including the Processed Apples Institute and the International Apple Institute. Formal exchanges of ideas,

joint development of advertising materials, etc., all could improve the efficiency of present advertising dollars. A systematic look should be taken at existing programs, areas for improvement identified, areas of duplication eliminated, and areas for joint activity pinpointed.

8. National or regional promotion programs can be operated under Federal marketing orders. Promotion programs are now permitted under Federal marketing orders as a result of 1970 legislation. The team strongly recommends that the apple industry seriously consider Federal market orders as a means of improving their promotion programs (see the chapter on supply).

Recommendations

As noted in the discussion above, one area of needed action is in market expansion programs, particularly promotion. Properly conceived and financed, a strong State and regional program with a concurrent and equally strong national thrust can be effective in expanding market demand. The most significant input from the USDA would be to assist the industry in an indepth research program.

It is recommended that an indepth appraisal be made of (a) consumer requirements for apples and apple products in the household market; and (b) hotel, restaurant, and institutional requirements of the away-from-home market. Emphasis should be placed on determining the desired characteristics of fresh apples, market potentials for apple juice, and the present and future product forms needed by the away-from-home market. This could be accomplished by the USDA through the Economic Research Service (ERS) in cooperation with the Statistical Reporting Service (SRS) and other appropriate agencies; it could be undertaken by State and college personnel; or it could be done by utilizing the field representatives of the various industry promotion organizations, or any combination of the above. Such a proposal should contain an expression of good faith by the industry that it will organize its promotional activities on a broad enough scope to fully implement the market research. The USDA Agricultural Marketing Service (AMS) would also be ready to help the industry with Federal marketing orders if they so desire.

Market Potentials--New Apple Products

Problem

New product development can be an important way of expanding market demand for agricultural commodities. The apple industry is no different in this respect. Yet, in terms of what has been accomplished, compared with other agricultural commodity groups such as dairy and citrus, the apple industry is far behind.

The crux of the problem is whether the apple industry, as presently constituted, has the financial and technical capability to move ahead successfully in this area.

Discussion

It became obvious from the regional meetings that efforts in new product development are both fragmented and underfinanced. The problem appears to be compounded by a lack of coordination in planning and execution by the industry itself and by USDA and State researchers. This is particularly true in an area vital to new product development strategy--market research.

There was a noticeable lack of enthusiasm among industry people for new apple products as a panacea for the ills of the industry. This lack of enthusiasm was directed more at USDA and university activities in this field than at private enterprise efforts. The public patent feature was the principal reason for this attitude. Apple processors are not willing to invest the large amounts of money needed to introduce a new product without having any exclusivity on the manufacture of the product.

In addition, USDA and university personnel were criticized for often operating in a vacuum without indepth understanding of the processing industry. As a result, they do not anticipate the production and marketing development problems with new products which processors frequently encounter. There is even some question as to whether the USDA and colleges should be involved in new product development. The industry was reluctant to make this a formal suggestion, but processors seem to feel they are more successful doing their own research.

There was general agreement that many apple processing firms were too small to be effective in new product development and introduction. Several suggestions were made for joint-venture enterprises between apple growers and an existing large food manufacturer for the purpose of generating a financial base for, among other things, a new product development program.

A considerable number of creative new products have been developed by universities, Government laboratories, and apple processing firms. Some of these new product ideas failed; others have never been tested in the marketplace. There are many reasons why this has happened, but there has never been an organized effort involving research groups to really evaluate the state of the arts. Once this is done perhaps these groups can work together on a more integrated new product development program.

Dried Apples.--Per capita consumption of evaporated apples (24 percent moisture) has been declining steadily for over a decade and will continue to do so in the foreseeable future. It is due, in part, to the high SO₂ content necessary for preservation which masks much of the apple flavor. In addition, evaporated apple slices do not reconstitute easily. Low-moisture products (2 percent) require little or no SO₂ and reconstitute easily and quickly. Sales of dried instant applesauce are gradually increasing, although it must compete with high quality, inexpensive canned sauce. There does not appear to be any immediate change in the present consumption of dried apples, but a gradual increase in use of instant applesauce may be expected as the public becomes aware of its availability. Manufacturers of dried products are looking for help in developing new products but at the moment the potential seems limited.

Frozen and Refrigerated Products.--Frozen apple slices are generally sold in large containers to the institutional trade. However, with improved texture and flavor it is conceivable that sales for home consumption may increase. Refrigerated fresh apple slices are just now appearing on the retail market. Designed for eating out of hand or in fresh fruit salads, this item may increase consumption of apples that do not meet the grade for fresh market and would otherwise bring a lower return to the grower. Waldorf salad mix was also mentioned as a possible new product with potential.

Canned Slices and Sauce.--Increasing consumption of applesauce or canned slices is unlikely. Canned applesauce is generally inexpensive but not always consistent in texture, color, and flavor. Some of the variation is due to the variety of apple used. Canned pie slices and pie slice fillings are being replaced by frozen and refrigerated fresh slices which yield a pie of better flavor and texture. Consumption of these products may gradually increase.

Juice and Concentrate.--This is the one bright spot in the apple industry today. Sales of natural and organic apple juice are booming; so is use of the concentrate used for apple wine. There appears to be a terrific potential for apple juice, including new items such as sparkling cider as a substitute for beer, carbonated apple juice, and cider pop.

Solutions

1. A number of new public patented processed apple products, presently not commercialized, such as osmovac apples and explosion-puffed apple pieces, have potential for market expansion. Because of the public patent feature and the large expenditures involved, it is not feasible for an individual firm to market test these products. If exclusivity is not possible, the USDA and colleges, in cooperation with an industry group such as the Processed Apples Institute or with groups of interested firms, should undertake to jointly finance the market research needed to assess the commercial potential of publicly developed new products that have promise.

2. The USDA through Agricultural Research Service (ARS) has available modern laboratory facilities and equipment which can be utilized for research and development on apples. Several commodity industries have developed a cooperative program with several of the regional laboratories where they (the industry) hire researchers to work exclusively on developing new products for that particular commodity area. The lab's facilities and, if necessary, equipment are used in carrying out such a research program. This would provide a least-cost approach to new apple product development. Of particular interest to the Northwest growers would be the reestablishment of the ARS Laboratory at Prosser, Wash.

Emphasis should be placed on developing new products to take advantage of the rapidly growing new markets--chocolate-coated, freeze-dried apple slices; carbonated apple beverages like the Mexican "Sedral"--the biggest seller in Mexico; a ready-to-mix Waldorf salad; and expanding the use of refrigerated

vending machines for apples. Similarly, new convenient fresh products could be developed for the food service industry where, because of labor shortages, the whole fresh apple is unacceptable.

3. A major information gap concerning processed apple product needs appears to exist. Apparently little or no indepth market research is available on market trends and requirements. The lack of a comprehensive marketing strategy on penetrating market outlets for processed products creates duplication of effort and dissipation of scarce resources. An indepth market research effort is needed to serve as a blueprint for a cohesive marketing strategy and more efficient penetration of markets by processed apple products.

Recommendations

1. The fresh and processed segments of the apple industry should form a planning committee to determine the feasibility of:

- a. Joint ventures of grower groups and processors.
- b. Indepth market research for the development of a more comprehensive marketing strategy for processed apple products.
- c. Joint research and development ventures with USDA regional laboratories.

2. In concert with the apple industry, the land-grant colleges and other universities and USDA agencies (ERS, SRS, and ARS) should set up an apple product review group to evaluate the current and prospective state of the arts and explore the feasibility of joint action in developing and commercializing new apple products.

Improved Government Purchase Programs

Problem

"The timing of USDA apple and apple product purchases programs may not be meeting grower needs." The strong feeling was that USDA programs help the processor, the shipper, or storage operator more than the grower.

Discussion

Main aspects of Government purchase programs touched upon at the regional meetings were timing, buying procedures, and quality. The timing aspect had several dimensions--one concerned the need for an early announcement by USDA as to "intention to purchase." It was suggested such an announcement should be between August 15 and September 15 for both fresh apples and apple products. Early announcement of "intentions to purchase" would help in setting fall opening prices. However, it should be recognized the pricing effect could be either negative or positive, depending on the decision to purchase or not purchase and the volume involved.

Another dimension concerns the timing of actual purchases. It was argued that purchases at the height of the harvest season in October or November would (1) ensure a better quality apple for the programs; and (2) have a greater beneficial or price strengthening effect on markets than later in the year.

Military and USDA purchase procedures requiring bids for processed apple products were strongly criticised by growers for creating lower than cost-of-production returns to growers. Bumper crops of the past 3 years have severely aggravated the downward pressure on prices caused by the bidding procedures. Several growers suggested that no bids be allowed below cost of production; that is, bidding should be on a cost-plus basis. It was pointed out that the Government now requires equal employment, minimum wages, and health standards criteria to be met in processor contracts; so why not a cost-of-production minimum price on Government purchases?

Another criticism of the USDA fresh apple program was the grade and quality of apples purchased. The USDA purchases fresh apples on a U.S. No. 1 grade basis. According to industry spokesman, U.S. No. 1 grade should not be used since they are not considered high enough quality by the trade for the consumer market. If apples are immature, bruised, or otherwise out of condition, they should not be disposed of via the school lunch program. If they are U.S. No. 1 grade because of color, but otherwise palatable, it appears they could be used in the school lunch program.

One of the problems cited by USDA school lunch officials on the fresh apple purchase program last year was the rejection of carlots by the States. For example, in fiscal 1971, New York State rejected 21 carlots out of a total of 44 offered and grown in the State. Poor timing of shipments, batching of deliveries, wrong varieties, and quality problems (including immature apples) probably were major factors in this rejection. Handling difficulties, lack of storage facilities, and other distribution problems in the school system were cited as additional barriers.

Manufacturers of low-moisture apple products in Washington and California have not been able to penetrate the USDA purchase programs. They have pointed out to USDA officials the inherent advantages of such products (storability, no refrigeration, ease of handling, etc.) but to no avail. The military does buy dried apple products for its mobilization program but not for general mess use. The problem for mess use seems to be that of meeting Quartermaster Corps specifications for dehydrated products.

The USDA position is that low-moisture products are not competitive in price with canned apple products and other dried fruits. The USDA does buy dried prunes, raisins, etc., which are considered better buys than dried apple products. In addition, it is felt that manufacturers need to develop a demand for their products at the local level. Another product possibility mentioned for the school lunch program was apple juice. This is a fast-growing item that should be emphasized in purchases. Apple juice would be especially appropriate for the school breakfast program.

It was noteworthy that few complaints were received about the magnitude of Government purchases under the school lunch program. The feeling seemed to be

that increasing direct Government purchases would affect sales through normal commercial channels. In addition, the Government has been active in purchasing both fresh apples and processed apple products in recent years. A few suggestions were made in regard to increasing apple purchases for the needy persons program, etc.

Solutions

1. Release early purchase announcement date for fresh and processed apple products (already proposed by International Apple Institute in a letter to AMS Administrator, Ervin Peterson). A rough estimate of expected purchases should be announced early in the season, possibly between August 15 and September 15.

2. Limit USDA purchases to Fancy grade or better apples for the school lunch program. Also, allow more tolerance on sizes by including 2½-inch to 2½-inch apples that are presently excluded. This is particularly applicable for selected varieties; Jonathans, for example.

3. Coincide actual fresh apple purchases for present and future delivery with harvest peaks.

4. Revise Government purchase procedures to encourage the commercial development of new apple products. For example, if adequate supplies are commercially available and the price competitive, purchase of low-moisture apple products would be of significant help to that industry

5. Arrange meetings of representatives of Agriculture and Defense to discuss the feasibility of changing procurement procedures for processed apples moving from a bid to a negotiated price.

Recommendations

1. The team recommends early announcement dates on offers to purchase fresh apples and processed apple products under Section 6 (school lunch) and Section 32 (child nutrition and needy persons programs). These programs are handled by AMS and the Food and Nutrition Service (FNS).

2. There is a need to take a systematic look at the present distribution of fruit for the school lunch and needy persons programs. Are facilities for handling and storage available and adequate? What quality problems are being encountered in the distribution system and what can be done to correct them?

3. A special program be set up by the apple industry to insure the best possible use of USDA and commercial fresh and processed apple purchases for the school lunch program by (1) having field representatives work with school district agents within States on timing of shipments, proper handling and storage practices, etc., and (2) working with schools at the local level to encourage them to buy fresh apples and processed apple products.

Farm Marketing Through Roadside and Pick-Your-Own Operations

Apple producers in several Northeastern and Midwestern States can probably expand direct sales to consumers through roadside farm markets and "pick-your-own" type operations. Although the potential for significant apple sales expansion through direct-to-consumer farm marketing may be limited, it appears to be a sales outlet with potential for many small and medium-size farm operations located near metropolitan areas. It is estimated that 10 to 15 percent of the present U.S. apple crop for fresh market is sold direct to the consumer through these two types of marketing outlets.

In the Northeastern States a multistate task force of extension marketing specialists from five States was recently established to discuss needs and develop guideline-type materials and publications on direct marketing. Two representatives of the apple marketing team met with this task force in April and also contacted other State extension specialists and management personnel of Statewide Certified Roadside Market Associations in New Jersey and Michigan regarding educational and research needs.

The following ideas were compiled on needs for educational and research efforts considered appropriate for future USDA and multistate cooperation:

1. Guideline publications on establishing successful farm market and pick-your-own operations, including layout, size, and cost relationships for various types of market facilities.
2. Development of an acceptable uniform recordkeeping-financial management system for farm market operators.
3. Need for development of a periodic series of statistics on number, type, and business volume of produce sold through direct on-farm marketing operations.
4. More workshops and tours for potential and present operators on all aspects of management.
5. Research and educational work on how retail prices are determined and factors to consider in setting these prices at the farm.
6. Need for a film and additional slide series to interest producers in farm marketing and to upgrade management practices of present operators.
7. Consumer research on factors affecting sales and product packaging.
8. Guidelines for establishing a farm market cooperative association.
9. Development of training materials on employer-employee relations, supervision, insurance needs, and merchandising display techniques.

Recommendation

It is recommended that the USDA, through the Extension Service, cooperate with State efforts to provide the above materials. Support should also be given to well-developed programs to aid State extension specialists in working with direct marketers.

The Export Situation For U.S. Apples

Problem

U.S. exports of fresh apples have declined significantly since about 1965 (fig. 2). This decline can be attributed to a host of factors, among the more important of which has been the exposure to a marked increase in competition in offshore markets. The purpose of this paper is to outline the present situation and to advance a number of possible solutions to the task of regaining export markets.

Discussion

The Decline in U.S. Exports.--Prior to World War II, the United States was the world's leading exporter of fresh apples. During the 1930's, our exports averaged about 10 million bushels annually. Western Europe was then, by far, our leading market.

Now, the situation is drastically different. Instead of first position, the United States now ranks 16th in the order of world exporters. Instead of an annual average of 10 million bushels, U.S. exports of apples have averaged slightly over 2 million bushels in recent years (see table 8).

Today, despite the fact that most of Europe is enjoying a high level of economic well-being, opportunities for furthering U.S. trade in apples to anywhere near prewar levels have vanished completely because of the rapidly increasing trend toward self-sufficiency within the European market.

The Emergence of France as a World Exporter.--One country in particular has dominated the European production and marketing scene--France. Beginning in 1959 and continuing through 1968, the French crop rose steadily without interruption, experiencing a growth rate of nearly 19 percent per annum. During the 4 most recent years (1968-71), its crop averaged 90 million bushels.

Prior to the mid-1960's, France was a net importer of apples by a sizable margin. Suddenly, in about 1965-66, French exports rose sharply and each successive season since then has witnessed an increase. In the most recent season, 1970-71, France moved 25.7 million bushels into export--representing nearly 30 percent of its crop.

Naturally, because of its strategic location, France has been able to penetrate the European market with almost unrelenting momentum during the fall and winter months. This, in turn, has resulted in a sharp displacement of the traditional Northern Hemisphere suppliers to the European market, such as Italy, the United States, and Canada. The displacement effects can be effectively illustrated in the United Kingdom, a leading world importer and formerly the key European market for U.S. and Canadian apples, as shown in the following series:

FRESH APPLES: EXPORTS FROM UNITED STATES

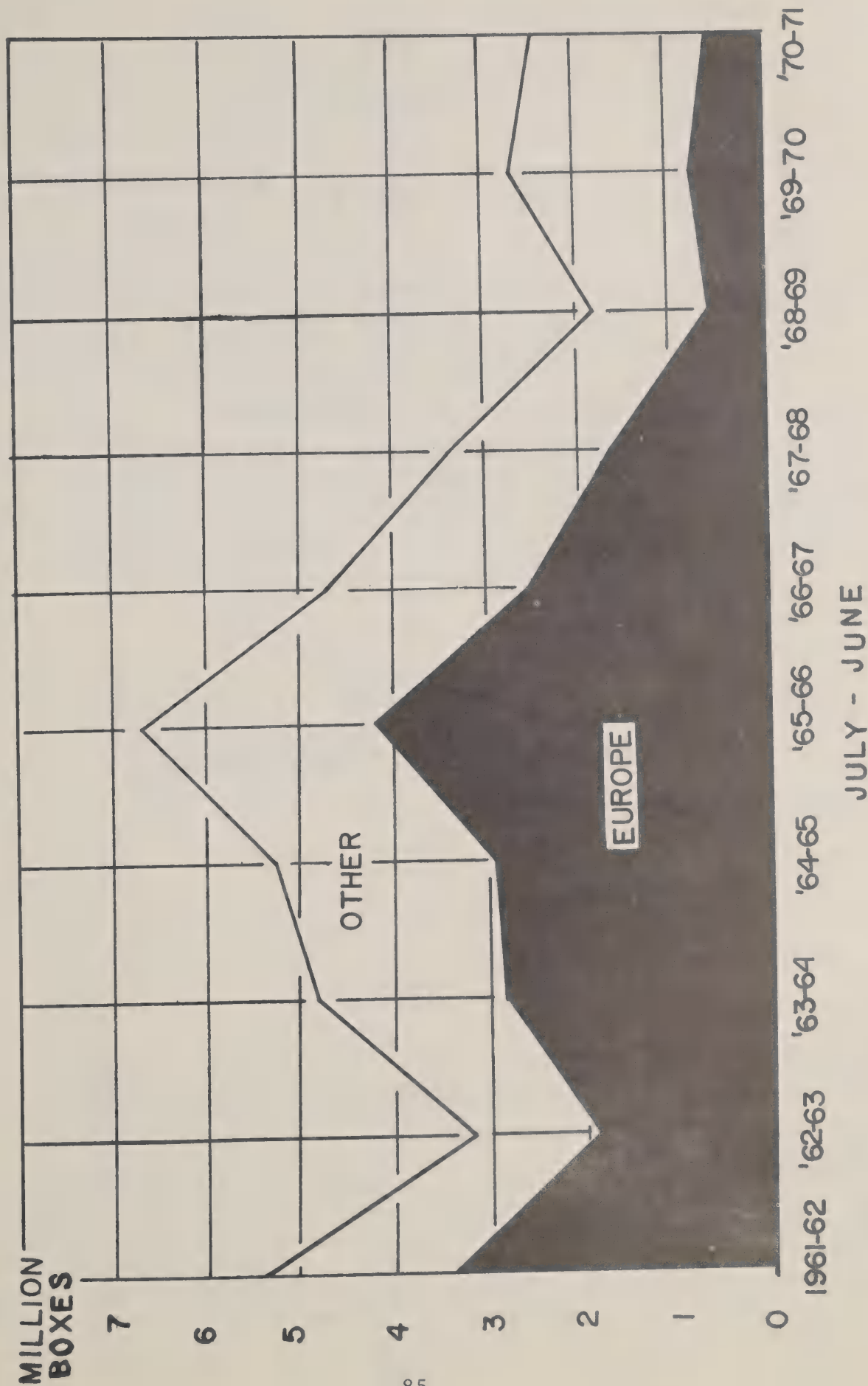


Table 8.--U.S. export of fresh apples by area of destination
seasons 1965-66 to 1970-71

Season (July-June)	Canada	Europe	Latin America <u>1/</u>	Other	Total
	<u>1,000 bushels</u> <u>2/</u>				
1965-66.....	1,117	4,166	957	434	6,674
1966-67.....	813	2,541	948	381	4,683
1967-68.....	764	1,659	584	340	3,346
1968-69.....	678	516	384	224	1,802
1969-70.....	949	726	705	296	2,676
1970-71.....	1,041	522	500	335	2,398
	<u>Percentage of total</u>				
1965-66.....	16.7	62.4	14.3	6.6	100.0
1966-67.....	17.4	54.3	20.2	8.1	100.0
1967-68.....	22.8	49.6	17.5	10.1	100.0
1968-69.....	37.6	28.6	21.3	12.5	100.0
1969-70.....	35.5	27.1	26.3	11.1	100.0
1970-71.....	43.4	21.8	20.9	13.9	100.0

1/ Latin American Republics only.

2/ 42 lb. per bushel.

<u>Season</u>	<u>United States</u>	<u>Canada</u>	<u>Italy</u>	<u>France</u>
----- <u>Percentage of total</u> ^{1/} -----				
1962-63	30	31	34	3
1965-66	33	28	25	10
1970-71	5	5	22	64

^{1/} Percentage of total imports into the United Kingdom from Northern Hemisphere countries.

France's penetration of the export market has not been limited by any means to Europe alone. Rather, it has fanned out in many directions, and more recently into our last stronghold, the Latin American area. In Latin America, France has focused its attention on two key U.S. markets, Brazil and Venezuela. The following tabulation--based on U.S. and French export statistics--shows the upward tendency in France's exports to each of these markets, compared with the generally downward drift in exports from the United States.

<u>Season</u>	<u>BRAZIL</u>		<u>VENEZUELA</u>	
	<u>France</u>	<u>United States</u>	<u>France</u>	<u>United States</u>
----- <u>1,000 bushels</u> ^{1/} -----				
1966-67	---	117	3	458
1967-68	6	33	104	274
1968-69	393	5	233	128
1969-70	459	1	88	332
1970-71	293	1	350	104

^{1/} 42 lb. per bushel.

Although the volume is still relatively small, a number of other Latin American countries have shown up very recently as recipients of French apples. These include Panama, Costa Rica, Ecuador, and Nicaragua.

Disparity in Ocean Freight Rates.--The charge is frequently leveled that France's penetration of the Latin American market has been facilitated by the existence of a subsidy. Repeated attempts to identify either the existence or nature of such a subsidy have been futile, however. The agricultural attaches in Venezuela, Brazil, and France are fully alerted to the problem and are instructed to report any evidence or further suspicions.

An inquiry to the attache post in Caracas, Venezuela, in May of this year, reveals that the ocean freight rate of recent shipments of French apples to the Venezuelan market approximated about US\$0.95 to US\$1.00 per carton. A response to a similar request to the agricultural officer in Sao Paulo reported an ocean freight rate for French apples, obtained from two independent sources, ranging between 90 cents and \$1.00 per carton (20-22 kg. net). The Brazilian citations represented rates from Marseilles or Bordeaux to Rio de Janeiro or Santos.

This is in sharp contrast to the conference rates applicable to U.S. fruit. For example, the conference contract rate to Venezuela was reduced this past shipping season from a "normal" rate of \$2.15 per carton to a temporary rate of \$1.94 per carton. The "normal" was resumed on April 1 of this year. As a further illustration of the wide disparity, the conference line serving Trinidad recently established a contract rate of \$2.75 per package (not exceeding 2 cubic feet) to Port-of-Spain, Trinidad.

Naturally, the relative position of the f.o.b. or f.a.s. price levels in France and the United States will, in large measure, dictate the direction in the flow of traffic to Latin America from one season to the next. The U.S. trade, however, is at an immediate disadvantage due to the disparity in ocean freight rates. Theoretically, aside from the quality factor, U.S. apples, in order to be perfectly competitive, must be priced below the French f.a.s. price to the extent of the disparity in ocean freight costs. Although Venezuelan importers have indicated a quality preference for U.S. apples, the difference in the relative prices is often too great to swing trade to the United States.

Industry Attitudes and Prospective Markets.--The French invasion of the world market has fostered an air of pessimism with respect to the future of U.S. apple exports. With a large market here at home, the retreat from export has not been a overly painful one. It certainly can be said that we have prepared ourselves well for this retreat. All too often in the past, especially in years of short or even average crops, we have elected to stay at home by pricing ourselves out of the export market. From the standpoint of shortrun monetary returns, this perhaps was a more rewarding decision. But, at the same time, we have lost an important weapon which many of our competitors have--continuity in export.

Although U.S. exports have seldom achieved even 5 percent of the national crop over the past several decades, they have nevertheless at times injected a needed healthy tone to the market in those areas participating in export. With the prospect of further increases in our production plant in the immediate years ahead, the industry cannot afford to overlook any and every outlet. Exports are no exception. There appears to be a widespread consensus within the industry that prospects for increasing trade to Europe to anywhere near the pre-1965 level are virtually nonexistent. With continuing heavy supplies of locally produced fruit available at relatively low prices throughout Europe during the fall and winter, this is perhaps an accurate assessment. At best, we can only hope to supply a limited volume of certain varieties which Europe does not produce or cannot produce well, such as the Red McIntosh and Yellow Newtons. The entry of the United Kingdom into the European Community will only further an already intensive penetration on the part of France and Italy into the U.K market--one of the few European markets in which we have managed to maintain a limited volume since 1965.

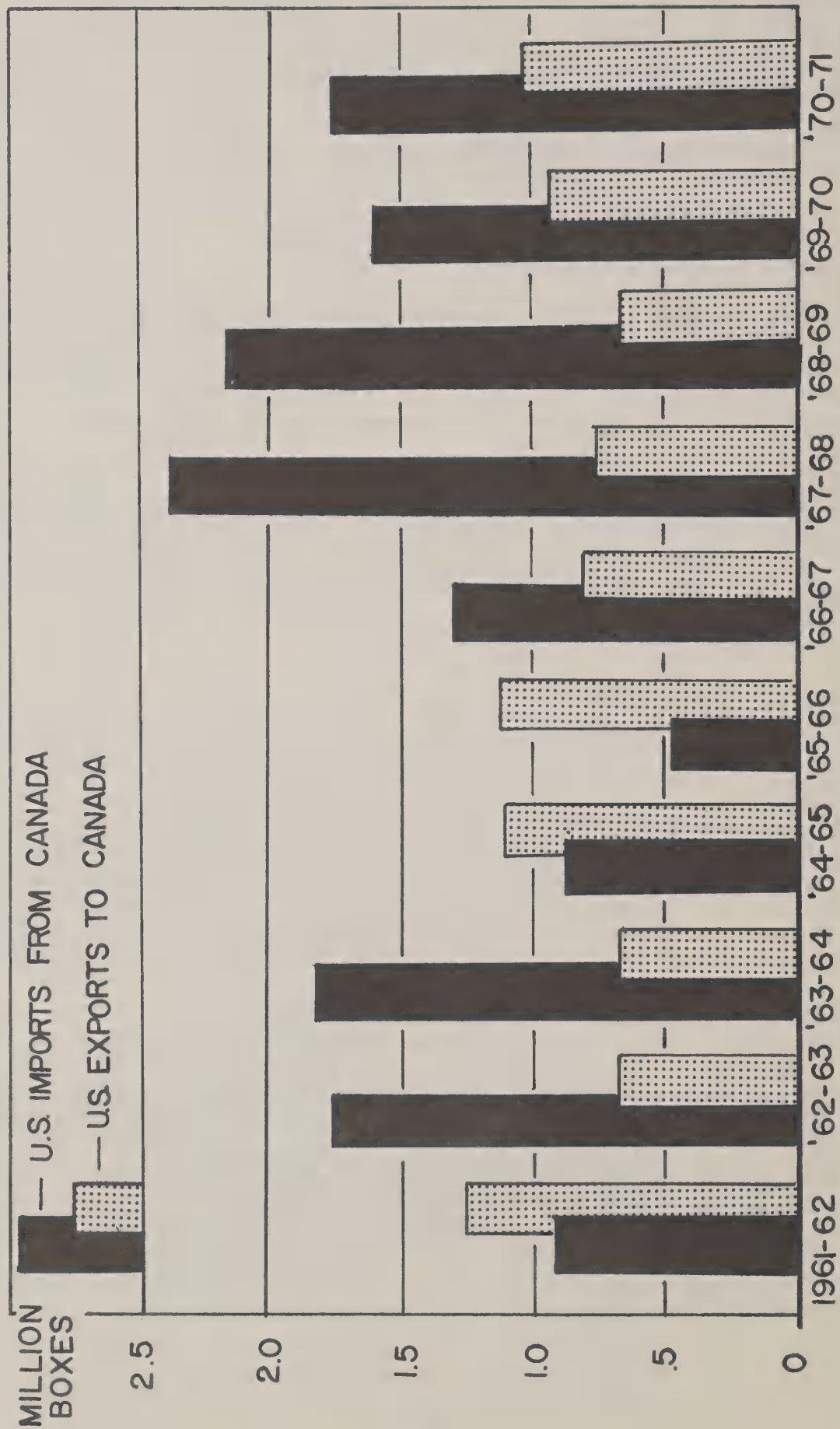
Looking to the north, Canada has always been an important market for U.S. apples. Trade between the two countries in fresh apples has been on a two-way basis for many years, with intermittent shortages dictating the direction of traffic (fig. 3). Largely because of the sharp decline in our movement to formerly key markets in Western Europe, Canada has become by far the No. 1 U.S. export market, taking between 35 and 45 percent of our total exports in recent seasons. Opportunities to expand movement to this market beyond the volume of recent experience are virtually nonexistent, not only because Canada itself is a large apple producer but like the United States, it too is experiencing considerable difficulties in export. The virtual loss of the U.K. market to the French has dealt the Canadians a serious blow.

Industry attitudes toward offshore markets other than Europe are much less unified. Some believe our potential in Latin America is just as hopeless as it is in Europe. Others believe to the contrary. All, however, agree that the Latin American market is a difficult one in which to operate. The obstacles to trade are many but not necessarily insurmountable in some cases.

Nevertheless, Latin America is about the only market area in the world that offers some export opportunities at the moment. The Far East could some day assume a more important role, but this will depend to a large extent upon Japan's removal of its embargo on apple imports because of the codling moth. The Japanese so far have adamantly refused to take a more conciliatory position in this issue.

The Japanese Problem.--Insofar as is known, the codling moth (*Laspeyresia pomonella*) (L) does not exist in Japan. U.S. records of interception from Japanese cargo, passengers' baggage, and air or vessel stores do not record codling moth from Japan. Experts believe that the sand pear imported into Hawaii from Japan in large quantities would surely have an occasional pest if the insect was present in Japan. Therefore, it is understandable that Japan refuses to permit importation of U.S. apples until there is substantial proof that U.S. apples will not contain live moth larvae. Codling moth larvae, particularly diapause larvae, are extremely difficult to eradicate. The diapause larvae--the most resistant stage of the codling moth to standard fumigations which the apple will tolerate--have survived in environmental conditions to a minimum temperature of -18°F. However, preliminary research (Moffit, H.F., 1971) indicates that fumigation with methyl bromide, followed by a controlled atmosphere storage for 90 days or more, shows promise as a means of eliminating live codling moth larvae from harvested apples. Means of eliminating codling moth larvae in apples after storage and in fiberboard packing materials also must be developed. Staff of the Plant Protection and Quarantine Programs, Animal and Plant Health Inspection Service (APHIS), also have recognized the need for this type of work and have requested research support to develop effective eradication treatments for apples and pears. Other promising research work indicates the possibility of eradicating the codling moth from a given production area through sanitation and sterile insect release approach. Results of this research will also apply to codling moth infestations of pears, stone fruits, and in-shell walnuts.

FRESH APPLES: U.S. TRADE WITH CANADA



JULY - JUNE

Figure 3

Foreign Agricultural Service

Distribution System to Tropical Markets.--Experience has frequently demonstrated that high handling costs and large losses are common in shipments to tropical markets because transportation, port receiving, and handling systems are either antiquated or grossly inefficient, or both. Apples and other fresh produce are handled manually many times and are frequently exposed to higher temperatures in these markets. This tends to result in excessive bruising and rapid quality deterioration. These inefficiencies and resulting losses tend to discourage shipments to such markets.

Many improvements can be made in the distribution system to help overcome the effects of these shortcomings. If the export market is to be pursued, the correct procedures for packaging, handling, loading, and transporting apples to these tropical markets must be systematically developed. Innovative improvements that will make it possible to deliver apples in good condition to ports where handling and refrigeration facilities are inadequate demand special attention. Low-cost methods of unitizing packed shipping containers that will reduce the number of times boxes are handled individually are critically needed. For example, Canada is attempting to develop insulated pallets and bulk bins with blocks of dry ice as the refrigerant and atmosphere modifier for the shipment of apples to tropical markets (Canada Agricultural Research Station, Kentville, N.S.).

Recommendations

The following areas are offered for the industry's consideration in coping with the problems of expanding activity in the export sector.

Market Intelligence Team.--Assuming there is industry unanimity that the export outlet must be pursued--either in Latin America or the Far East--one of the very first tasks of the industry should be simply to get the facts, i.e., assemble as much on-the-spot intelligence as is possible regarding the present and future potential of the Latin American or Far East markets for apples. To facilitate the implementation of this approach, the industry collectively should request the Foreign Agricultural Service to underwrite a project within the market development context aimed initially at the intelligence aspect. This, in turn, would provide a sound basis from which to launch a concerted effort to regain lost markets and to develop new ones. France itself might be a corporate part of an on-the-spot inquiry by the team.

A basic stipulation should be that the project team be headed by top-notch talent from the industry who are intimately acquainted with international trading practices. The scope of the initial investigation would be to identify the nature of our competition--what our competitors are doing to develop the market, their methods of selling and pricing, their distribution system, and what assists are being provided by the home government. Through this assemblage of facts, the U.S. apple industry would be in a much better position to judge what tools would be needed to effectively do the job in Latin America.

Organization for Export.--A review of recent history of horticultural exports reveals that there have been a number of success stories. California-Arizona citrus and California almonds provide two examples of successful export ventures. The magnitude of their successes is not necessarily of key relevance at this point but, rather, their organizational characteristics. In both instances, the two industries are relatively localized and more importantly, the selling function is in the hands of a relatively few firms. And, in both, the export sector is well integrated into the overall operations.

In contrast, the U.S. apple industry is widely scattered among some 39 States. Grower operations in many instances are either too small or too distant from port facilities to justify an active interest in exports. Individually, they cannot do it alone. Collectively, however, the task of doing the job becomes a more realistic possibility.

In addition, a look at our competition in apple markets abroad reveals the export function in a number of countries is handled wholly or in part on a collective basis. For example, the Australian Apple and Pear Board was created many years ago primarily for the purpose of negotiating ocean freight rates and arranging shipping space on an industrywide basis. New Zealand goes a step further in that its Apple and Pear Marketing Board buys the fruit from growers, thus assuming the entire responsibility for selling and distributing the crop.

One means by which the U.S. apple industry might strengthen its export position is provided by the Webb-Pomerene Export Trade Act of 1918. Basically, this law is designed to promote exports on a cooperative basis by permitting members of an industry to band together through the formation of an export association. A unique feature of the act rests in the provision for qualified exemptions from prohibitions of the Sherman Anti-Trust Act of 1890 (as well as the Federal Trade Commission and Clayton Acts of 1914).

An association formed under the Webb-Pomerene Act is strictly a voluntary one and may not include a large part of the industry. The functions performed by the association can vary widely. Some purchase the products outright from their members and conduct all the remaining export functions. Others act only as agents for their membership. Some fix the price and terms and conditions of sale of their members' products sold abroad. Other functions as reported by associations to the Federal Trade Commission (the agency responsible for the administration of the act) include:

Negotiating freight rates, cargo space, and shipping dates; and consolidating shipments;

Preparing shipping documents and arranging for insurance;

Standardizing products for export and improving the quality of offerings; maintaining inspection services, employing claims agents, and settling disputes over export sales;

Obtaining and selling goods of producers outside of the association, in order to fill the association's export orders;

Collecting and disseminating trade information as to market conditions abroad, foreign credits, stocks available for export, exchange situations, tariff requirements, and shipping rules and regulations.

In view of the industry's present low-volume status in export as well as the imminent probability of further production increases in the offing, it would appear that the U.S. apple industry might well wish to explore the feasibility of establishing an export association under the Webb-Pomerene Act.

Conceivably, there are a number of distinct advantages that might accrue to the apple industry from such an association. By virtue of being able to command a larger volume, the industry would be in a much better negotiating posture with respect to ocean freight rates and shipping space, possibly through contracts with nonconference lines. Furthermore, it would provide an opportunity for the small grower to participate in export. Again by virtue of its command of greater volume, the association could service large orders which call for individual shipments over an extended period of time; and, last but not least, it could strengthen the industry's negotiating position with foreign buyers not only through a reduction in the number of U.S. sellers but also through the possibility of greater continuity in a given market.

The Export Subsidy Issue.--The charge has been frequently leveled that the French are subsidizing their fruit exports to Latin America in one form or another. However, attempts thus far to uncover the actual existence or nature of any such subsidy have been futile. Nevertheless, many within the U.S. apple industry are of the opinion that a subsidy is today the only effective means of combating competition in Latin America. Admittedly, there are a number of valid reasons to support the use of an export subsidy but at the same time a host of reasons can be advanced in opposition to such a practice. At this point, therefore, it might be well to outline the arguments on both sides of the issue.

One argument in favor of a subsidy is that it provides a direct means of "fighting fire with fire." If France is employing a subsidy, then the adoption of one of our own would place us on a more or less equal footing competitively in Latin America. Aside from the French question, the proponents cite the fact that the conference rates applicable to U.S. exports are among the highest in the world. They charge that the U.S. Government has failed to effectively challenge the upward spiral in such rates over the last 5 to 10 years and individual efforts on the part of the industry to contest the rate increases have been to no avail. Therefore, they contend that a subsidy is the only means of compensation to counter the inflationary rate increases.

On the other side of the issue, the argument can be advanced that a subsidy, although it provides an element of continuity in export, is all too often viewed as a panacea; and because of this, its mere presence tends to postpone the active pursuit of a more enduring basis for the expansion of trade. Also, we have no way of knowing how a host market country will react to the use of an officially announced subsidy. It could conceivably take steps to counter the effectiveness of the subsidy through countervailing duty actions or an outright embargo. Furthermore, if the suspicions that the French subsidy to Latin American are ill-founded, the French would not likely hesitate one moment to make an international case out of our action.

Another argument against employing a subsidy is that it would not be consistent in dealing with the import problem currently facing us on both fresh apples and concentrated apple juice where the possibility of some form of assistance may be used by the exporting country. Hence, there is a lack of consistency in our policy. On one hand, we advocate a subsidy on exports; on the other, we abhor the subsidy on imports.

In view of the above arguments, the industry might be well advised to pursue the subsidy issue with caution. The reasons for our declining role or lack of participation in the Latin American market appear to be based more on hearsay evidence rather than on a careful objective analysis of facts. It is suggested, therefore, that before the industry pursues the active employment of a subsidy, it should first seek to get the facts, explore the alternatives, and then make an appraisal as to what it would cost to do an effective job in Latin America. Industry efforts and attitudes in the past toward the development of the Latin American market have been, at best, highly fragmented. Regionally, there have been marked differences in attitudes. On the surface, it is apparent that as individuals we have failed. Collectively, the story might be different.

In this respect, it is believed that, as suggested earlier, the formation of a market intelligence team, composed of highly competent industry personnel, would mark a first but important step in a concerted industry drive to determine and guide our future role in Latin America.

Removal of Foreign Trade Barriers.--The industry should, preferably through a central organization, continue to press the U.S. Government to intensify its efforts toward the removal of illegal trade barriers which exist today in many parts of the world. This action can be accomplished through the Department of State and the Office of the Special Representative for Trade Negotiations.

A host of barriers of long standing have existed in a number of the European countries. It has been argued that the removal of such barriers in the European area would be largely academic. Currently, this is probably so. However, the oversupply problem in Europe over the past 5 years has been a painful one, low returns to growers are widespread, and costly Government interventions to remove surplus supplies have become a persistent necessity. The need for an adjustment in the European production plant has already become a critical issue. Within the European Community, a bounty for tree removals has been made available to growers. In Italy, long the leading apple producer in Europe, sizable quantities of surplus apples have been directed to the distillation of alcohol, an outlet of extremely low returns.

With the distinct possibility of a readjustment in European output, the absence of trade barriers, if and when such a readjustment occurs, would facilitate again our participation in that market area, or at the very least, it might have the indirect effect of removing the pressures on the French pursuit of markets beyond the European frontier.

The industry should also press for an immediate solution to the long-standing Brazilian problem. An exorbitantly high tariff as well as a wide array of import charges have plagued the development of the Brazilian market for U.S. apples. Efforts started several years ago to reduce the Brazilian tariff to a

more reasonable level have so far been nonproductive. (The same problem is applicable to U.S. exports of fresh pears.) Brazil and Argentina are both members of the Latin American Free Trade Association (LAFTA). By virtue of this membership, Argentina--an important producer and exporter of apples--has been instrumental in persuading the Brazilian Government to refrain from granting a permanent tariff concession. Although the United States has asked for a concession during that part of the year when Argentine supplies are seasonally low or nonexistent, Argentina stubbornly refuses on the grounds that the lower duty on apples would only help France and not the United States. Although the volume from France has far exceeded that of the United States in recent years, this does not necessarily mean that the French will continue to have a permanent hold on the Brazilian market. The adoption of a program to make the United States more competitive could conceivably reduce France's role in that market. The overriding issue should be that the excessively high Brazilian tariff is effectively curtailing the consumption of apples in that market.

Codling Moth Research.--The industry should seek to have more governmental funds and manpower directed to the eradication of the codling moth. Although some work is now being carried on in this field, it has been quite limited.

Improvements in the Distribution System.--Research should be directed to improvements in the distribution of U.S. fruits to tropical or semi-tropical markets. This would encompass the development of more efficient and functional packaging, handling, and transport systems.

A Review of U.S. Import Control Measures

Expressions of industry concern over imports of both fresh and processed apples have been frequent and widespread. Suggestions as to precisely how the industry can collectively cope with the import problem, however, have been few. As in any competitive situation where foreign supplies are involved, there are three general alternatives: (1) Terminate or reduce operations; (2) effect further cost savings so as to become more competitive, thereby reducing the attractiveness of imports; and (3) resort to legislation, through either the employment of existing remedial measures or seeking new legislation.

Alternative (1) must, of course, be a last resort. Alternative (2) is particularly difficult in an advanced industry already plagued by inflationary pressures within the domestic economy. Alternative (3) is inherently an almost immediate target. Here, the clamor from the industry is for the Government to do something--imports simply must be stopped. But the cold fact is that most of the legislative provisions enabling import relief are such that the action must be initiated by the industry itself. The Government can neither decide nor initiate action on an industry's behalf.

A number of legislative measures have been enacted over a period of years by which an affected industry can seek relief from imports. The successful application of import restraints provided through such measures, however, has been limited, particularly in the area of horticultural products. Efforts to seek relief have been, and continue to be, stymied for a variety of reasons, the more important of which are described in the following.

In some instances, the requirements under the specific law, and as interpreted administratively, are too stringent to qualify for relief. The administrative interpretations appear to be entirely in keeping with the free trade concept. The so-called "escape clause" provisions of the Trade Expansion Act of 1962 and earlier versions of this law provide an excellent illustration. Section 301 of this act permits any interested party to apply to the U.S. Tariff Commission for an investigation to determine whether, as a result in major part of a trade agreement concession, imports are entering the United States in such increased quantities as to cause or threaten to cause serious injury to the domestic industry. If it is found that imports cause or threaten to cause serious injury to the industry, the President may increase the import duties or impose import quotas to protect the industry.

Under the Commission's procedures employed in a Section 301 investigation, three individual points must be satisfied collectively for a successful verdict. These points are:

1. Imports are increasing;
2. The increased imports are, in major part, a result of a trade agreement concession; and
3. These increased imports are causing or threatening to cause serious injury to the industry.

A review of the cases brought before the Tariff Commission indicates that it has been a rarity for the petitioning industry to meet all three points collectively. All too often, an industry faced with an import problem finds that Section 301 is about the only legislation available that offers any possibility for relief. But here, attempts to prove that the increased imports result in major part from a previous trade agreement have been a frustrating undertaking. Up to the present time, the Commission's majority rulings tend to discredit historical concessions as being the compelling force behind the increased import activity.

Futhermore, the interpretation of two key words--"injury" and "threat"--is of critical importance to the success or failure of any such petition for relief. The word "injury" has without question a multitude of connotations. To some, injury can only be shown in profit-and-loss statements. To others, the entry or exit of firms into a given industry is the real criterion for measuring injury. And to still others, the displacement of labor is a vital measurement. Thus, with such wide latitude of interpretation, it is not surprising for a panel--operating without well-defined criteria--to come up with a majority finding of no injury, even through the reasons for a "no injury" finding may differ widely among the panel's members.

Likewise, the word "threat" is an elusive one. There is an extremely wide divergence of opinion between industry and Government as to just what constitutes a threat. To those in an affected industry, the mere fact that imports are increasing, regardless of their magnitude, constitutes a threat. In Government circles, however, the definition appears to be much more qualified. To some, a threat can only be measured when there is concrete evidence of injury. The

latter, in turn, takes on connotations similar to those previously described for the injury concept. The extremists in the nonprotectionist camp appear to assume a position that the mere dazing of the victim with body blows is not enough. Rather, the countdown toward total defeat must already be well in progress.

In other instances, the legislated criteria tend to be discriminatory in application. Section 303 of the Tariff Act of 1930, for example, provides for the imposition of a countervailing duty on dutiable imports that have received an export bounty or grant. Thus, those commodities whose statutory rates were reduced through subsequent trade negotiations to a "zero" status are not entitled to seek relief under this statute. Fresh apples and concentrated apple juice are among such commodities precluded.

In still other statutes, the maximum relief provided for is wholly inadequate to place an effective brake on imports. Although it may have been fully adequate when the legislation was originally conceived, the applicable relief under today's standards would be of little or no utility. An example may be found in Section 336 of the Tariff Act of 1930.

Section 336 calls for import fees to equalize differences between foreign and domestic costs of production. Theoretically, this legislation seemingly strikes at the very core of the dilemma now facing the U.S. horticultural industry. Although many cost-saving innovations have been adopted over the past 5 to 10 years, they have not been sufficient by any means to overcome the very distinct advantage held by many of our foreign competitors from the standpoint of labor costs. Examination of the requirements specified in Section 336, however, immediately injects a stopping point. The first limiting condition is that the commodity must be one for which the statutory duty rate (as established for the most part under the Tariff Act of 1930) is still the applicable rate; i.e., it excludes a commodity for which the statutory rate has been reduced in subsequent trade agreement negotiations.

The second limiting factor in the Section 336 provisions rests in the magnitude of the relief permitted. The relief is solely in the form of an increase in duty but the maximum increase is limited to 50 percent of the statutory rate. Under existing conditions, a 50-percent increase would be, in the majority of cases, grossly inadequate to offset the now prevailing disparity in the production costs between foreign and domestic producers. Conditions existing at the time the statutory rates were conceived were entirely different from those prevailing currently. What was then considered adequate protection for domestic producers is no longer the case due to the spiraling inflation in both labor and other production costs. Today, wages paid to agricultural workers in this country on an hourly basis equal or exceed a full day's wage in many other areas of the world.

Looking still further into the legislative spectrum, we can find another extreme. In contrast to the very stringent requirements of the import measures just described, there are a number of laws that are either wholly or almost completely void of criteria for relief. In these instances, administrative interpretation is naturally given considerable leeway. But, here again, we find the interpretation tends to be on the nonprotectionistic side.

Section 204 of the Agricultural Act of 1956 provides an excellent illustration. This section permits the President, "whenever he deems such action appropriate," to negotiate with foreign governments in an effort to obtain agreements limiting the export to the United States of any agricultural product or products manufactured therefrom. Implementing regulations may be issued and if a multilateral agreement is concluded covering a significant part of world trade, the regulations may be applied to nonparticipants.

This enactment is thus obviously unique from most other legislation in that it provides no substantive criteria by which relief action can be pursued. The phrase, "whenever he deems such action appropriate," can be construed as the only exception. Noticeably absent are the words "injury" and "threat."

The absence of legislated boundaries thus permits considerable latitude for administrative interpretation. On the basis of recent history, it appears that the interpretations are strongly reflective of the free trade concept. A number of industries, plagued by the problem of increasing imports, have entertained seeking relief through the Section 204 route. But they have been dissuaded from doing so. Despite the fact that imports may already represent a highly significant part of total U.S. marketings, these affected industries have found that neither this nor the very apparent threat of more to come is sufficient grounds to win administrative approval. Unless the industry is able to marshal concrete evidence of injury, Section 204 appears to offer no possibilities for relief. The accepted presence of a threat itself is simply not enough.

On the basis of the foregoing review, it appears that the existing legislation and the administrative interpretation thereof make it exceedingly difficult for an affected industry to obtain import relief in any governmental forum. All too often the absence of publicly declared criteria under which various statutes may be invoked leads the affected industries to rely on their own interpretations, or that of their legal counsel, of the language of the statutes or as they are further able therewith to develop political support to achieve a more tolerable interpretation administratively.

If precise criteria were made known, either within the legislation itself or administratively, this would "clear the air" immeasurably, tending to arrest the loss of motion, time, and finances in the pursuit of import relief as well as a loss of faith in government processes.

Another disruptive force of more recent vintage has been the growth in consumerism. The inflationary spiral which has plagued this country for so many years has in itself generated a much more cohesive force within the family of American consumers. Consumers as a group have become a great deal more united in voicing their concern with respect to the rising cost of their food bill. Today, we find that consumerism weighs heavily in the halls of Congress and perhaps equally so within administrative circles. Any action, attempted or otherwise, designed to curb imports means only one thing to the American consumer--higher prices. The voice of a small industry, whose very survival is being threatened, is seldom heard in the consumer forum. This only compounds the dilemma facing the U.S. fruit grower who too is a victim of the inflationary spiral.

Problem

Fresh apples have long been imported into the United States. Until recently, most of these imports originated in Canada. About 1968, however, a number of the apple-producing countries of the Southern Hemisphere--plagued by the increasing uncertainties of their once lucrative European market--were beginning to show an active interest in the North American market. Moderate gains have since been posted in each successive year. Although the Southern Hemisphere volume so far is still only a very small part of our total annual supply, it has nevertheless fostered increasing concern due to the conflict with U.S. marketings from CA storage in the spring and early summer as well as the new crop of summer apples.

Discussion

Market Disruption in Europe.--France's dramatic growth in production and its deep penetration of the European market have caused much concern and serious reappraisal on the part of the traditional suppliers to that area. The situation has been especially critical for the Southern Hemisphere countries--Australia, New Zealand, South Africa, Argentina, and Chile--who historically have been vitally dependent upon the European market. About 90 percent or more of the annual exports from Australia, New Zealand, and South Africa traditionally moved to Europe, whereas Argentina and Chile depended on the European market taking two-thirds or more of their respective exports annually. Because of the acceleration in storage capacity to accommodate the larger European crops, the once profitable market for Southern Hemisphere apples in the late spring and early summer has faded considerably.

A further disruption to Southern Hemisphere marketings in Europe rests in the fact that the United Kingdom--long a key market for the Commonwealth suppliers (Australia, New Zealand, and South Africa are accorded duty-free treatment)--is now in the process of becoming a member of the European Community. All three of the Southern Hemisphere suppliers now stand to lose the Commonwealth preference and be subjected to the EC's import tariff which presently ranges between 8 and 14 percent, c.i.f. basis.

Participation in U.S. Market.--Recognizing the continuation of heavy supplies locally in Europe and the attendant threat of increased protection in that area, the Southern Hemisphere suppliers have been casting about for new markets. The North American market has not escaped their attention. Beginning about 1968, Southern Hemisphere participation in the U.S. apple market increased appreciably. As can be noted from the following series, imports have since gained some momentum.

<u>Year</u>	<u>1,000 boxes (42-lb. equivalent basis)</u>
1965	69
1966	75
1967	70
1968	169
1969	297
1970	288
1971	527

Australia, New Zealand, and to a lesser extent, South Africa have been the principal Southern Hemisphere suppliers. Such imports generally begin in about March or April and continue in heavy volume through the early summer, a time at which our own apples are normally undergoing their peak movement from controlled-atmosphere storage and are also enjoying their best market from the standpoint of price. A portion of the Southern Hemisphere supplies also coincide with the early marketings of summer apples.

Australia's Apple and Pear Stabilization Scheme.--In 1971, Australia launched a new marketing plan--known as the Apple and Pear Stabilization Scheme--for "risk" fruit moving into export, which, in effect, appears to be a subsidy. Under this scheme, a support price is established, by varieties, for fruit shipped on a risk basis, i.e., shipments on consignment, for sales afloat, or on consignment against a guaranteed advance. If the season average returns for a given variety fall below its support price, a payment is to be made from a stabilization fund. If the average returns exceed the support price, then the owner is obligated to make an assigned payment to the fund. A determination as to whether payments are to be made from the fund cannot, of course, be made until the entire shipping season has concluded since payment is contingent on the position of the overall average returns from all markets for the entire season. Thus, if the Australians were to make random shipments of the Granny Smith variety to the U.S. market during a given season, all of which reflected a price below the support level, it will remain unknown whether such shipments are eligible for a support payment until the shipping season has concluded. Thus, it will be a determination "after the fact." In the meantime, the damage has been done.

In late May 1972, the Government of Australia released the details on payments from the stabilization fund covering operations in 1971. The amount of risk fruit shipped in 1971 totaled 7.4 million bushels. Because this volume exceeded the limitation under the scheme, the unit payment from the fund had to be reduced accordingly--to about 56 U.S. cents per bushel. In this instance, the Commonwealth Government provided the total amount of the payments--US\$3.1 million--to the Apple and Pear Board for distribution to the owners of the fruit. The unit payment was made only on apples since the average varietal returns for pears were generally higher than their respective support prices. Consequently, most pear varieties as well as a few varieties of apples were subject to "pay-ins" to the stabilization fund. These totaled only US\$139,162. The individual "pay-outs" on apples ranged from a high of 56 U.S. cents (applicable to Granny Smiths, the key variety shipped to the U.S. market) to a low of 12 U.S. cents.

Normally, in the case of foreign subsidies, a U.S. industry could seek to impose countervailing duties on the imported item under Section 303 of the Tariff Act of 1930. The tomato canners in California, for example, have been successful in employing the provisions of this statute on three occasions (imports from Italy, France, and Greece). No legal counsel has to be employed to pursue such relief nor does "injury" or "threat" need to be proven. However, the law requires that the imported item must be a dutiable one. The U.S. import duty for fresh apples (as well as apple juice) was reduced to a zero status during the Kennedy Round negotiations. Hence, apples are not eligible for relief under this statute.

Reciprocity of Trade Opportunities.--As late as the Kennedy Round negotiations, the U.S. apple industry was a staunch advocate of the principle of free trade and actively supported, through the U.S. National Fruit Export Council, the Government's drive to attain this goal. This attitude was manifested in the Kennedy Round trade negotiations when the U.S. import duty on fresh apples (and apple juice) was reduced to a zero status.

The recent upsurge in the importation of fresh and processed apple products, however, has made the U.S. industry very mindful of the fact that reciprocity of trading opportunities does not exist in the apple-supplying countries of the Southern Hemisphere. Although the volume would not necessarily be large, our apple industry believes some marketing opportunities exist in these countries during their off-season. In contrast to the unimpeded access to the U.S. market, most of the Southern Hemisphere countries employ one or more devices that effectively prohibit imports of apples from the United States. Although most trading countries of the world have agreed in the forum of the General Agreement on Tariffs and Trade (GATT) not to use plant quarantine regulations as a trade barrier, there is considerable suspicion that some of the Southern Hemisphere countries use the quarantine regulations as an effective excuse for prohibiting competition from foreign suppliers within the home market.

In Argentina, tariffs are in themselves a real impediment to market access. The Argentine system imposes an import duty of 70 percent ad valorem on all non-LAFTA countries, a 1½ percent statistical tax, and a prior deposit requirement of 40 percent. The possibility that U.S. fruit could meet Argentina's plant quarantine regulations does exist, but due to the excessively high duty, there has been no export activity to test these regulations.

In Chile, all imports of fresh noncitrus fruits (except bananas, plantains, coconuts, and dates) are prohibited under the local plant quarantine regulations because of the oriental fruit fly. Insofar as the United States is concerned, this insect is known to exist only in the State of Hawaii. Despite the fact that Hawaii is considerably distant from the nearest U.S. pear-producing area, fruit suppliers from the entire United States are blanketed by the Chilean prohibition.

Australia prohibits the entry of fresh apples from the United States because of fire blight. Fire blight affects branches, leaves, blossoms, and fruit spurs, but seldom attacks the maturing fruit. It is highly unlikely that clean fruit, free of limbs and twigs, would be a carrier of fire blight.

The position of South Africa is reflected in the recent attempts of the Canadians to enter that market. Reports indicate that Canadian apples have thus far been denied access because of the possibility that their fruit may have European red mite infestations.

New Zealand is the only Southern Hemisphere supplier that now permits the importation of U.S. apples. After a series of attempts extending over a period of years, New Zealand modified its plant quarantine regulations to permit the entry of U.S. apples. As result, a small volume was exported to New Zealand this past season.

Recommendations

The following suggestions are offered for the industry's consideration in dealing with the import problem.

Legislative Needs.--Specifically, two general approaches are recommended in the area of legislative needs. The first would involve seeking amendments to existing legislation; and the second, seeking legislation designed to be more responsive to the type of problems now facing not only the apple industry but other horticultural groups. The specific recommendations within each of these categories are outlined below.

Amendments to Existing Legislation

1. Section 303 of the Tariff Act of 1930, as amended, provides for the imposition of a countervailing duty on any dutiable imports that are subject to an export bounty or grant. An amendment should be sought to provide for the deletion of the requirement that the imported article be a dutiable one.

The justification for such an amendment is that present law is discriminatory between dutiable and nondutiable items. Fresh apples and concentrated apple juice, for which the duty rates were reduced to a zero status during the Kennedy Round negotiations, are thus precluded from Section 303 procedures. Although the rates prevailing prior to the Kennedy Round were minimal, their retention nevertheless would have made these items eligible.

If such an amendment was accomplished, it would provide grounds for the industry to seek remedial action on the adverse effects of Australia's Apple and Pear Stabilization Scheme.

2. The Anti-Dumping Act of 1921 permits an industry to petition the Secretary of the Treasury for a "dumping" investigation whenever the industry has evidence to the effect that foreign merchandise is being imported into the United States at less than its fair value. Should the investigation confirm the industry's charge, the case is then referred to the Tariff Commission for a determination of injury or the threat thereof.

Although the Tariff Commission is required to reach a verdict within 90 days following the Secretary of the Treasury's findings, the Treasury Department is under no such time limitation. In fact, some of the investigations made by the Treasury have embraced an unduly long period of time. When relief is finally provided it is often too late to be of any use. It is, therefore, recommended that the industry seek an amendment to the Anti-Dumping Act of 1921 to limit Treasury's investigation to a time period.

3. The horticultural industry should seek an alternative to the "escape clause" provisions as presently embodied in Section 301 of the Trade Expansion Act of 1962. A requirement of this Section--that the increased imports are, in major part, a result of a trade agreement concession--has been a major impediment toward the attainment of a favorable finding under the statute.

Although the reduced duty provided through a trade agreement concession may have been an initial factor in the increased import activity, there are, perhaps, more compelling factors in most instances. For example, the sharp differences between U.S. and foreign wage rates in the horticultural area would be a much more compelling force. The industry should strive to have these more potent factors incorporated as criteria into the statute.

New Legislation

Unlike the industrial area, horticultural and other agricultural pursuits are exclusively subjected to the vagaries of weather. Once the tree is in the ground, its productive capacity from one year to the next is, in large measure, at the mercy of weather. Experience has frequently demonstrated that any pre-season strategy toward improving market access as well as current investments in the oncoming crop can be destroyed virtually over night. Oftentimes, the magnitude of supply cannot be determined with reasonable certainty until harvest time. Under such conditions, the supply management function becomes a most complex and variable one.

To compound this uncontrollable supply problem, another serious uncertainty recently has been injected into the apple marketing picture. The emergence of imports into this country from the Southern Hemisphere is now a new force to be reckoned with. Although the volume is still relatively small and its effects have so far been localized, there are no indications that it will remain so. The reception of this fruit in the United States has been enthusiastic and the Southern Hemisphere suppliers are actively addressing themselves to the further exploitation of the North American market.

To the U.S. apple marketer, the import threat adds an entirely new dimension to his marketing problems. A good marketing manager must have his sales strategy well planned by harvesttime in the fall. At that time, however, he has no knowledge of what to expect in the way of import activity during the latter half of his traditional marketing season. Crop conditions in the Southern Hemisphere are then too imperfect to judge the probable magnitude of competition. His only assurance is that there will be imports.

Solutions, if they are to effectively cope with this impasse, will have to come through the legislative route. Unfortunately, there are no statutes currently on the books that realistically address themselves to a "threat." In some existing statutes the word "threat" is mentioned but in a vague and almost futile association with the word "injury." Administrative interpretation has consistently refused to accept a threat in itself as a decisive determinate for relief. Foreign suppliers, fully cognizant of the inadequacy of our legislative measures and the long history of administrative denial, move assuredly with a seemingly everlasting green light.

The U.S. horticultural industry should address itself now and aggressively to the task of seeking legislation that will be more responsive to the existence of a threat. What appears to be most needed is a statute that will spell out well-defined criteria and benchmarks, leaving little latitude for administrative interpretation. This should provide a clear signal to foreign suppliers that a speed zone lies immediately ahead. Once imports have reached a predetermined point, a control mechanism of some sort should be triggered automatically.

It is not intended at this point to spell out the details of any control mechanism. This is something that the industry and the Congress must jointly work out. However, if the fate of earlier import control bills is to be avoided, certain guidelines should be followed. The controls should be lenient enough so as not to alienate the American consumer and at the same time to keep the domestic entrepreneur from becoming overly ambitious pricewise. Yet the controls should be stringent enough to provide a respectable notice to foreigners that there is now a limitation to their ambitions in this market.

Market Intelligence.--Naturally, a heavy volume of imports can result in moderate-to-serious disturbances to our own marketings. Uncertainties as to timing and quantities, as well as to what markets the Southern Hemisphere supplies are directed, can adversely affect prices and movement of our domestic storage supplies during the winter and spring months.

In order to alleviate or at least minimize these disturbances to local marketings, the Fruit and Vegetable Division of the Foreign Agricultural Service (FAS) initiated a monitoring system to obtain advance information through the agricultural attaches stationed in the five Southern Hemisphere posts. In 1970, a two-phase system of reporting was launched. First, the agricultural attaches in each of the Southern Hemisphere supplying countries were instructed to obtain as soon as possible, in advance of the marketing season, the total amount targeted for the U.S. market during the new season and, if possible, the planned volume by time periods and market destinations.

The second phase of the reporting system related to shipments within the marketing season. Here, the agricultural attache was instructed to cable Foreign Agricultural Service (FAS/Washington) the identity of all individual shipments as they occur, that are destined for the United States, including such information as the date and port of exit, name of the vessel, quantity, port of destination, and estimated time of arrival. As soon as this information is received, it is relayed to marketing organizations within the U.S. apple industry. Through this means it is believed that domestic marketers are in a better position to plan their marketing strategy and policies.

The reporting program described above has worked well in all countries with the exception of Australia. Although the Australian Apple and Pear Board has cooperated reasonably satisfactorily with respect to the projected exports for a given season, the identification of all individual shipments as they are made within the course of the shipping season has not been fully satisfactory.

It is, therefore, recommended that a high-level approach be made to the Australian apple industry to secure its cooperation in providing a complete identification of individual shipments as they occur. Similar approaches should also be made to the other Southern Hemisphere supplying countries to again emphasize the critical need for a comprehensive monitoring system.

Concentrated Apple Juice: The Import Problem

Problem

The rather sudden growth in the U.S. demand for concentrated apple juice over the past few years has stimulated considerable interest in the production of this item in the United States. When this demand first emerged, foreign suppliers were by far the primary beneficiaries because they stood ready with a supply at an attractively low price--a price that would reflect little or nothing in the way of returns to the U.S. grower. Though market prices have since risen appreciably, the future role of imports still remains a threat to the viable participation of U.S. growers in the newborn demand for concentrate.

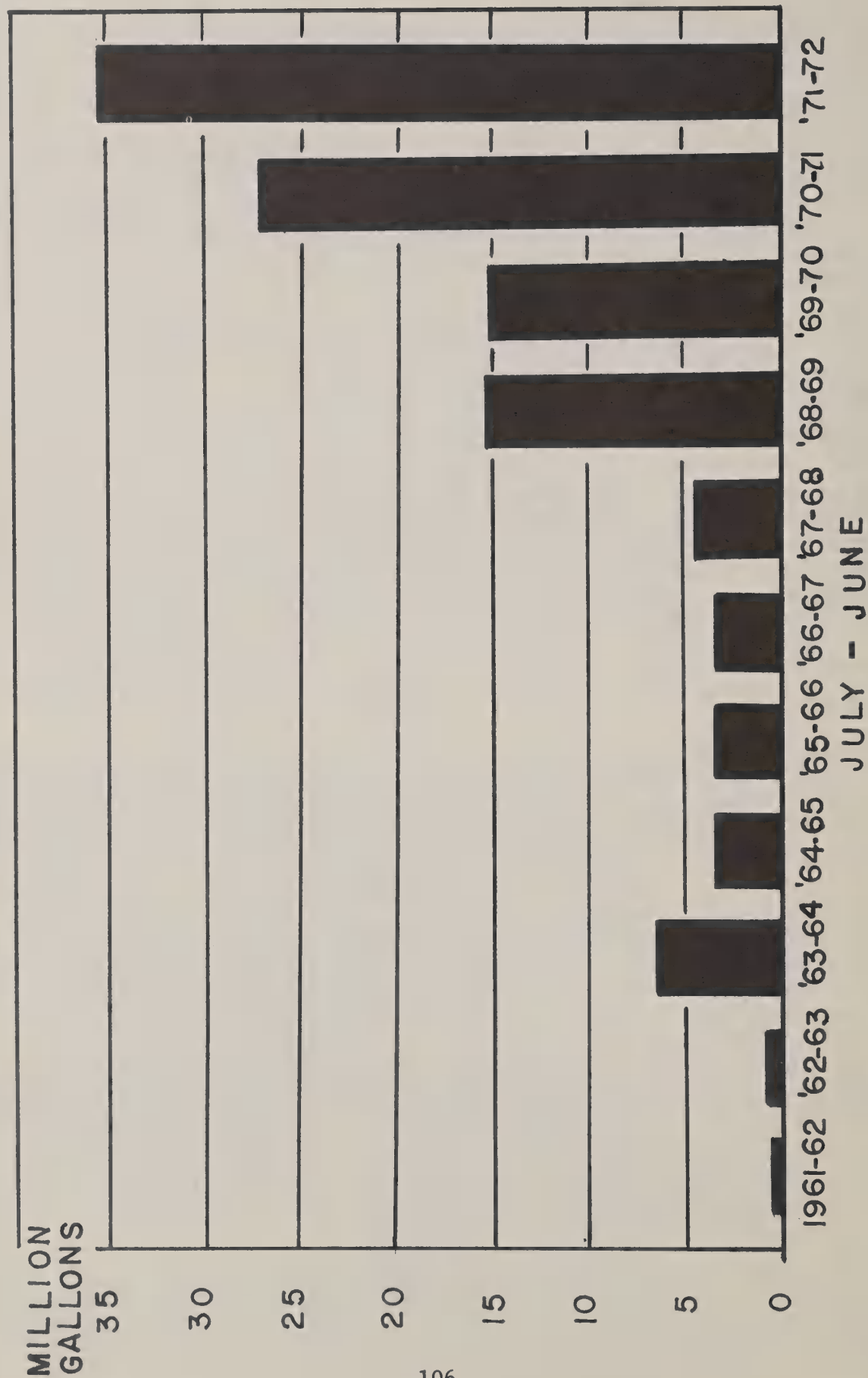
Discussion

Recent Import History.--Imports of juice into this country have risen dramatically in recent years. During the 1970-71 season (July-June), imports reached an alltime high of 27 million gallons (expressed on a natural juice equivalent). This marked an eightfold increase over the volume of only five seasons earlier. It is already an accomplished fact that imports thus far in the current season will set another new record. For the first 10 months of 1971-72 (July-April), shipments totaled 29.7 million gallons, 44 percent ahead of the pace of a year earlier. The performance for the current season (through April) is equivalent to about 8.3 million bushels, which, in turn, is nearly equal to the combined 1971 apple crop in the States of Illinois, Indiana, and Ohio (see fig. 4).

The momentum in import activity stems in large measure from the sharply increasing popularity of a relatively new product, apple wine. A recent review of the import manifests revealed that a very high proportion of the imports was being directed to domestic wineries. The production of apple juice for the retail market has also shown a marked increase over the past few years. Most, if not all, of the imports are believed to be in concentrated form, generally ranging between 70 and 75 degrees Brix.

Although there have been a large number of foreign suppliers participating in the U.S. market (18 currently), three countries accounted for 80 percent of the imports in 1970-71; namely, Switzerland, France, and Argentina. Among the more important remaining suppliers are Austria, Greece, West Germany, and South Africa.

APPLE JUICE: IMPORTS INTO UNITED STATES



Growers' Returns and Market Prices.--Until very recently, the juice outlet has been one of rather persistently low returns to growers. Deliveries to this outlet consisted largely of apples rejected for other uses, such as the fresh market or the other more remunerative outlets within the processing family. Unlike some areas elsewhere in the world, few, if any growers in this country produce apples primarily for juice. Rather, they have geared their operations to the fresh market or to canning and freezing.

When the demand from California wineries for apple concentrate suddenly emerged, foreign supplies were there to meet this demand at an attractively low price--a price that would reflect little in the way of a return to our growers. In the early months of 1971, prices for imported concentrate (c.i.f., eastern seaboard) varied between \$1.55 and \$1.95, depending on the degree of concentration, with most of the quotations around \$1.80 per gallon. According to informed sources, this would have reflected a grower price of \$10.00 or less per ton. Although a number of U.S. processors were then producing concentrate, it was impossible to acquire raw fruit at this price, which in itself would not even begin to return the grower his cost of production.

In the late fall of 1971, prices for the imported product began to move upward, to around \$2.25 per gallon. And, by late March of the following year, the market had climbed to \$3.75 per gallon. Apparent shortages in foreign supplies and the continuing high demand from local wineries were largely responsible for this sharp upward movement in price.

The Future of the Concentrate Market.--Naturally, the sudden healthy tone to the juice market has generated interest anew in this country. Established concentrators began scrambling for raw fruit held in storage and a fairly large and widespread number of groups are now exploring the feasibility of establishing or adding to processing facilities. And one of the largest wineries in California has already acquired a sizable tract of land for new plantings.

The question immediately arises as to whether the popularity of apple wine will continue. Some believe it will have a short life cycle; others maintain the opposite view. The fact that one of the largest users of concentrate is planting its own orchards suggests to some, faith in the longevity of the product.

Should the popularity of apple wine continue, then a second question arises as to the future price level of imported concentrate. There are fragmentary signs in a number of European countries that because of low returns, the production of juicing apples is declining. On the other hand, there are signs that a number of countries--notably Argentina, New Zealand, and Australia--are actively focusing more attention on the juicing sector. Nevertheless, a return to the price level that existed in early 1971 would economically deny the U.S. apple grower, as he now operates, full-scale access to the juice market. His present cost structure simply would not permit him to do so.

Should a grower choose to produce exclusively for the juice outlet, it is entirely conceivable that certain costly cultural functions, so inherent in producing for the fresh market or for canning or freezing, could be reduced or eliminated. Inhibitions with respect to size and color would largely disappear. And, importantly, such operations would lend themselves well to the mechanization of the harvest function.

Assistance to Foreign Exporters.--The extremely low prices prevailing for imported concentrate in early 1971 prompted the suspicion that some form of assistance was being extended to the local apple industries of the supplying countries. The agricultural attaches stationed in these countries were instructed to investigate such possibilities. On the basis of their findings, it became clearly evident that Switzerland, the No. 1 supplier to the U.S. market for the past three seasons, was employing a support mechanism which at the time permitted the export price to be well below that on the domestic market. The Swiss action was then a clear violation of one of our laws, known as the Anti-Dumping Act of 1921. In this instance, an affected industry can petition the Treasury Department to investigate the possibility of "dumping" (i.e., exporting a commodity at a price less than its fair value). If the Treasury investigation substantiates the industry's allegation, the case is then referred to the U.S. Tariff Commission for determination of injury or the likelihood of injury. If a finding is made in favor of the domestic industry, a special duty, equal to the amount of the dumping, can be assessed on the imported product from the offending country.

The domestic industry, through the International Apple Institute, explored to considerable length the possibility of filing a request for an anti-dumping action. However, the consensus was that as soon as Switzerland learned of such a petition, it would quickly equate its domestic price to that in export. The latter would not be a difficult feat since the usage of concentrate within Switzerland is believed to be quite small. Furthermore, if the U.S. industry were successful in effecting a special dumping action on imports from Switzerland, the decline in this instance would likely be offset by increased export activity on the part of other foreign suppliers.

In the meantime, the market price for imported concentrate in the United States rose appreciably and is now at a level which would virtually preclude the attainment of relief through the Anti-Dumping route.

Although the attache's reports indicated fragmentary evidence of assistance measures in a few countries other than Switzerland, the findings were not sufficiently definitive to warrant the pursuit of actions under our existing statutes.

Recommendations

The recommendations relating to "Legislative Needs" in the section entitled "FRESH APPLES: THE IMPORT PROBLEM" are equally applicable to the subject category, concentrated apple juice, and, therefore, are not repeated here.

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